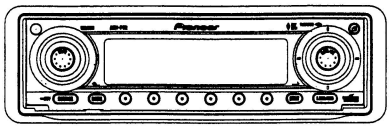
Pioneer sound.vision.soul

Service Manual



ANH-P9R/EW

ORDER NO.
CRT2877

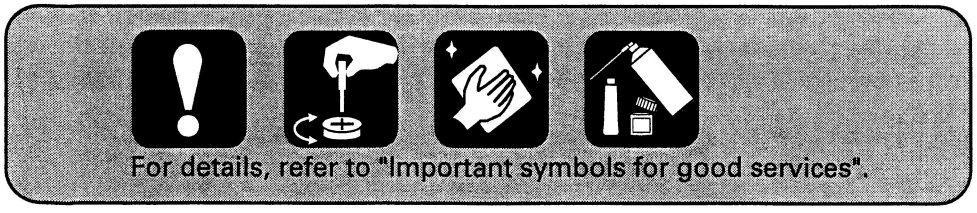
NAVIGATION/CD TUNER

ANH-P9R/EW

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech.Module	Remarks
CX-977	CRT2624	S9	CD Mech. module:Circuit Description, Mech.Description, Disassembly

COMPACT disc DIGITAL AUDIO



PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
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K-ZZS.JUNE 2002.Printed in Belgium

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

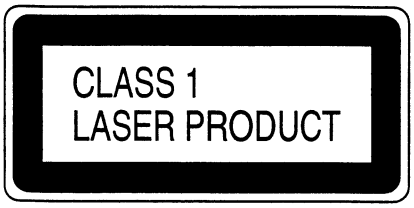
1. Safety Precautions for those who Service this Unit.

- **When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

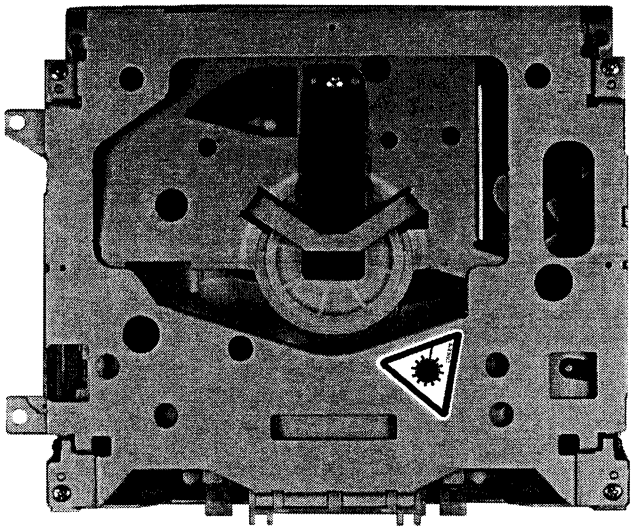
Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.



3. The triangular label is attached to the mechanism unit frame.



4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.
Wavelength = 800 nanometers

[Important symbols for good services]
In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

● CD section precaution

1. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
2. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY" on page 56.
3. After replacing the pickup unit, be sure to check the grating. (See p.51.)

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1. SPECIFICATIONS

General

Power source ..... 14.4 V DC
(10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption
..... 10.0 A
Backup current
.....Less than 6 mA
Dimensions (W x H x D):
Chassis (DIN) ..... 178 x 50 x 157 mm
Nose ..... 188 x 58 x 18.0 mm
Weight ..... 2.0 kg

Navigation

(GPS receiver)
System ..... L1, C/Acode GPS
SPS (Standard Positioning Service)
Reception system 12ch
Reception frequency ..... 1,575.42 MHz
Sensitivity ..... –130 dbm
Position update frequency Approx. once per second

(Common)
Maximum current consumption
..... 10 A
Power source ..... DC 14.4 V (10.8–15.1 V allowed)
Ground type ..... Negative type

(GPS antenna)
Aerial ..... Micro strip flat antena/right-handed helical polarizaton
Aerial cable ..... 5.0 m

(Dimensions)
Main unit ..... 178 (W) x 50 (H) x 157 (D) mm
GPS antenna ..... 46 (W) x 46 (H) x 13 (D) mm

(Weight)
Main unit ..... 1.5 kg
GPS aerial ..... 115 g

Audio

Maximum power output 50 W x 4
50 W x 2 ch/4 Ω + 70 W x 1 ch/2 Ω (for subwoofer)
Continuous power output 27 W x 4
(DIN 45324, +B=14.4 V)
Load impedance ..... 4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout max output level/output impedance
..... 2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer):
(Low)
Frequency ..... 40/80/100/160 Hz
Q Factor 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Gain ..... ±12 dB
(Mid)
Frequency ..... 200/500/1 k/2 k Hz
Q Factor 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Gain ..... ±12 dB
(High)
Frequency ..... 3.15 k/8 k/10 k/12.5 k Hz
Q Factor 0.35/0.59/0.95/1.15
(+6 dB when boosted)
Gain ..... ±12 dB

Loudness contour:
(Low) ..... +3.5 dB (100 Hz)
+3 dB (10 kHz)
(Mid) ..... +10 dB (100 Hz)
+6.5 dB (10 kHz)
(High) ..... +11 dB (100 Hz)
+11 dB (10 kHz)
(Volume: –30 dB)
Tone controls:
(Bass)
Frequency ..... 40/63/100/160 Hz
Gain ..... ±12 dB
(Treble)
Frequency ..... 2.5 k/4 k/6.3 k/10 k Hz
Gain ..... ±12 dB
Subwoofer:
Frequency ..... 50/80/125 Hz
Slope ..... –12 dB/oct
Gain ..... ±12 dB

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format:
Sampling frequency 44.1 kHz
Number of quantization bits
..... 16; linear
Frequency characteristics
..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz)
(IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.5 – 108.0 MHz
Usable sensitivity ..... 9 dBf (0.8 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity 15 dBf (1.5 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range ..... 531 – 1,602 kHz (9 kHz)
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

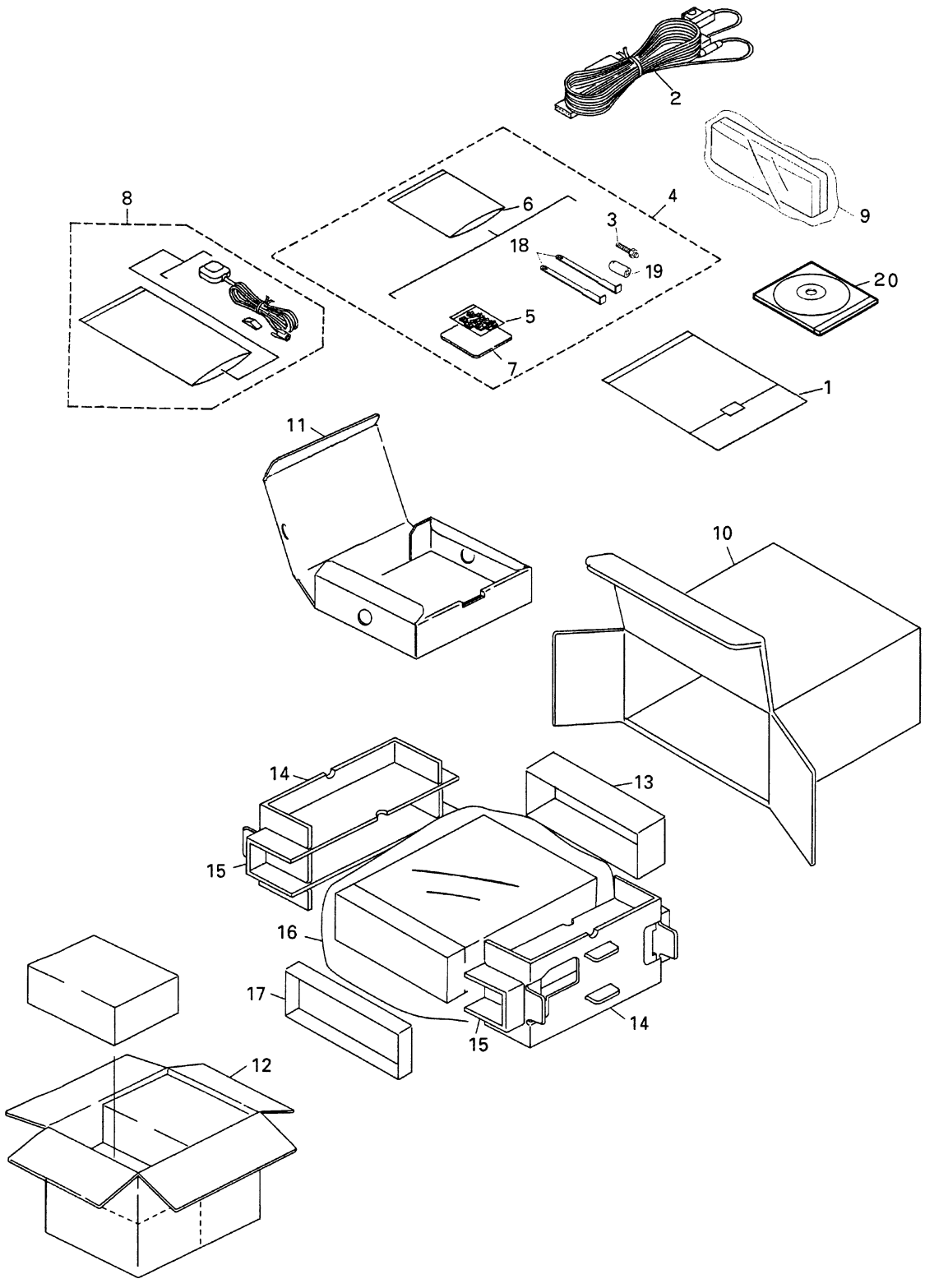
LW tuner

Frequency range ..... 153 – 281 kHz
Usable sensitivity ..... 30 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)

2. EXPLODED VIEWS AND PARTS LIST

NOTES : • *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
• *Screw adjacent to ▽ mark on the product are used for disassembly.*
• *For the applying amount of lobricants or glue, follow the instructions in this manual.*
(In the case of no amount instructions,apply as you think it appropriate.)

2.1 PACKING



PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1-1	Owner's Manual/PEE/ENG	CRB1784
	1-2	Owner's Manual/PEE/SPE	CRB1785
	1-3	Owner's Manual/PEE/GER	CRB1786
	1-4	Owner's Manual/PEE/FRE	CRB1787
	1-5	Owner's Manual/PEE/ITA	CRB1788
	1-6	Owner's Manual/PEE/DUT	CRB1789
	1-7	Installation Manual	CRD3652
*	1-8	Warranty Card	CRY1157
	1-9	Polyethylene Bag	CEG1116
*	1-10	Passport	CRY1013
	2	Cord Assy	CDE6998
	3	Screw	CBA1002
	4	Accessory Assy	CEA3428
	5	Cord Clamper Assy	CEA2644
	6	Polyethylene Bag	CEG1161
	7	Sheet	CNM6902
	8	GPS Antenna Assy	CXB8937
	9	Case Assy	CXB3520
	10	Carton	CHG4739
	11	Sub Carton	CHG4779
	12	Contain Box	CHL4739
	13	Protector	CHP2386
	14	Protector	CHP2445
	15	Protector	CHP2446
	16	Polyethylene Bag	CEG-162
	17	Protector	CHP2553
	18	Handle	CNC5395
	19	Bush	CNV3930
	20	CD-ROM	

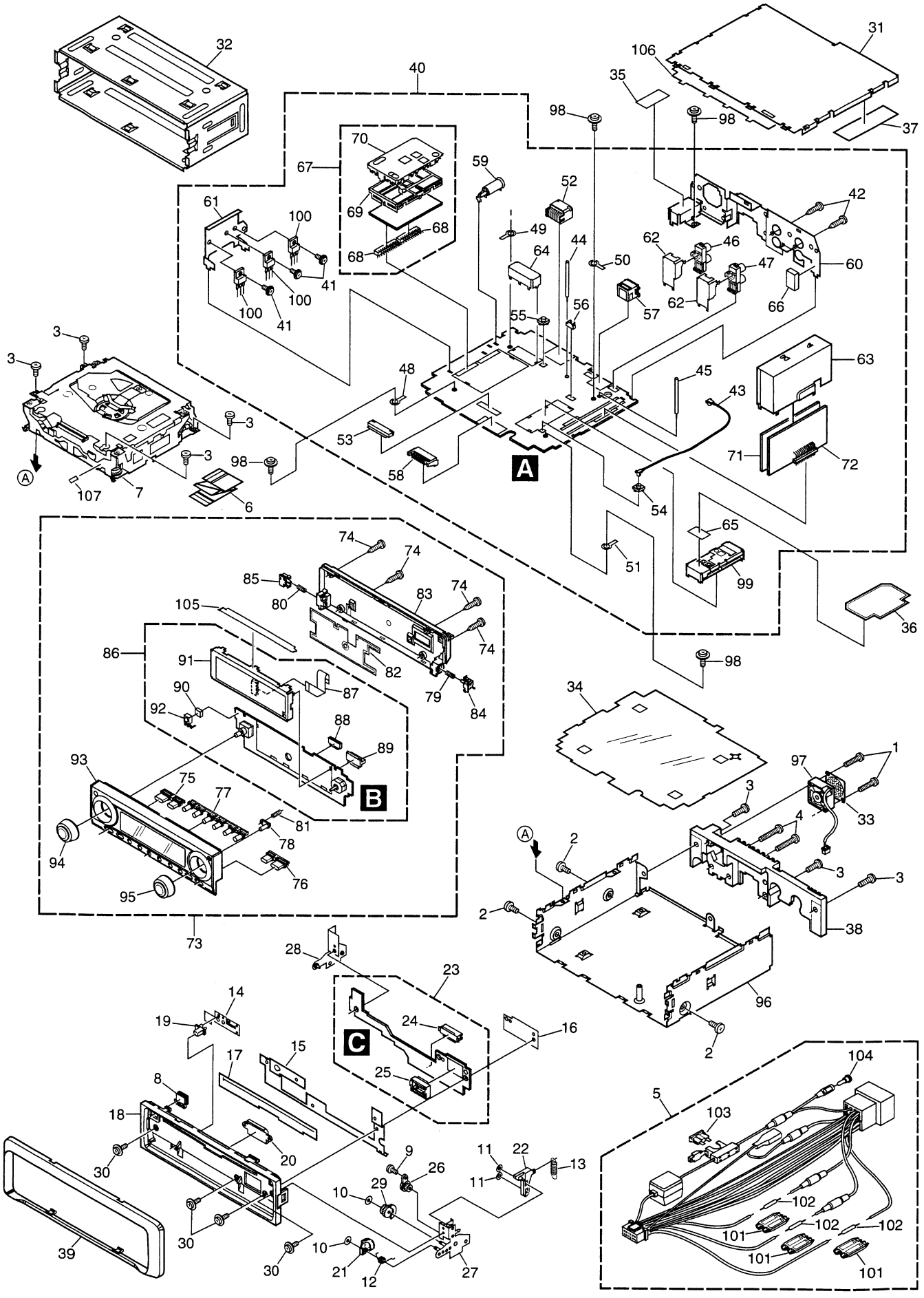
Owner's Manual,Installation Manual

Part No.	Language
CRB1784	English
CRB1785	Spanish
CRB1786	German
CRB1787	French
CRB1788	Italian
CRB1789	Dutch
CRD3652	English, French, Spanish, German, Italian, Dutch

CRB1784 (Owner's manual in English)
CRB1785 (Owner's manual in Spanish)
CRB1786 (Owner's manual in German)
CRB1787 (Owner's manual in French)
CRB1788 (Owner's manual in Italian)
CRB1789 (Owner's manual in Dutch)

When the products are shipped from our factory, the above manuals and CD-ROM are not A manual will be attached to the product package on the site (PEE) according to the language used in the country or area to which the product is delivered.
A CD-ROM will be attached to the product package at the PEE.

2.2 EXTERIOR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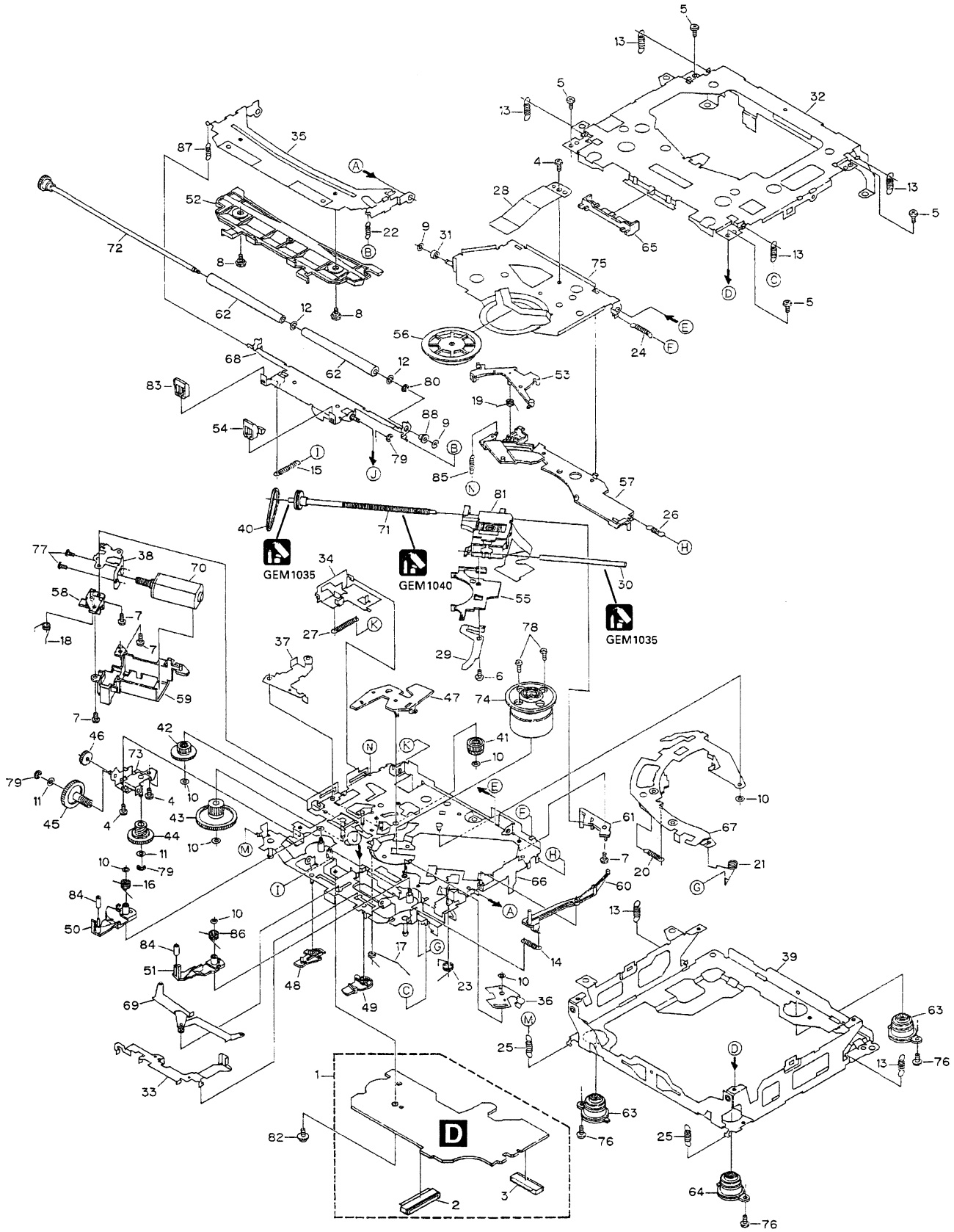
101

EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ26P140FZK
	2	Screw	BMZ30P040FMC
	3	Screw	BSZ26P080FMC
	4	Screw	BSZ26P160FMC
	5	Cord Assy	CDE6998
	6	FFC	CDE7000
	7	CD Mech. Module(S9ARROW)	CXK5553
	8	Button(EJECT)	CAC7653
	9	Screw(M2x2)	CBA1176
	10	Washer	CBF1038
	11	Washer	CBF1039
	12	Spring	CBH2428
	13	Spring	CBH2429
	14	Spring	CBL1512
	15	Earth Plate	CND1044
	16	Holder	CND1045
	17	Cover	CNM7763
	18	Panel	CNS7107
	19	Pin	CNV6486
	20	Lighting Conductor	CNV6487
	21	Gear	CNV6507
	22	Arm	CNV6508
	23	Panel Unit	CWM8366
	24	Socket(CN1802)	CKS3552
	25	Connector(CN1801)	CKS4566
	26	Damper Unit	CXB5070
	27	Holder Unit	CXB6356
	28	Holder Unit	CXB6357
	29	Clutch Unit	CXB6358
	30	Screw	IMS20P045FZK
	31	Case	CNB2762
	32	Holder	CNC8659
	33	Cover	CND1336
	34	Insulator	CNM7761
	35	Insulator	CNM7855
	36	Shield	CNM8069
	37	Insulator	CNM8074
	38	Heat Sink	CNR1647
	39	Panel	CNS7132
	40	Main Unit	CWM8365
	41	Screw	ASZ26P060FMC
	42	Screw	BPZ26P060FMC
	43	Cord Assy	CDE7003
	44	Clamper(CN992)	CEF1004
	45	Clamper(CN991)	CEF1004
	46	Pin Jack(CN251)	CKB1035
	47	Pin Jack(CN252)	CKB1035
	48	Terminal(CN403)	CKF1064
	49	Terminal(CN402)	CKF1064
	50	Terminal(CN703)	CKF1064
	51	Terminal(CN471)	CKF1064
	52	Plug(CN901)	CKM1278
	53	Connector(CN131)	CKS1961
	54	Connector(CN472)	CKS2619
	55	Connector(CN952)	CKS2619
	56	Connector(CN971)	CKS3124
	57	Connector(CN101)	CKS3408
	58	Plug(CN951)	CKS3539
	59	Antenna Jack(CN401)	CKX1056
	60	Holder	CND1041
	61	Holder	CND1042
	62	Shield	CND1043
	63	Shield Case	CND1060
	64	Shield	CND1186
	65	Shield	CND1337
*	66	Spacer	CNM8006
	67	FM/AM Tuner Unit	CWE1607
	68	Connector(CN1,2)	CKS4244
	69	Holder	CNC8708
	70	Case	CNC8709
	71	GPS Unit	CWX2693
	72	Navi Unit	CWX2694
	73	Detach Grille Assy	CXB8921
	74	Screw	BPZ20P100FZK
	75	Button(SOURCE,BACK)	CAC7654
	76	Button(NEXT,BAND)	CAC7655
	77	Button(1-6)	CAC7656
	78	Button(OPEN)	CAC7657
	79	Spring	CBH2430
	80	Spring	CBH2431
	81	Spring	CBH2491
	82	Shield	CNM8075
	83	Case	CNS7106
	84	Holder	CNV6505
	85	Holder	CNV6506
	86	Keyboard Unit	CWM8367
	87	Connector	CDE6741
	88	Connector(CN1902)	CKS3995
	89	Connector(CN1901)	CKS4565
	90	Spacer	CNM7764
	91	OEL Module	MXK8019
	92	IC(IC1901)	TSOP4840SB1
	93	Sub Grille Assy	CXB8908
	94	Knob Unit(INFO)	CXB8909
	95	Knob Unit(NAVI)	CXB8910
	96	Chassis Unit	CXB9873
	97	Fan Motor	CXM1207
	98	Screw	IMS26P050FMC
	99	Tuner Unit(Y471)	CWE1674
	100	Transistor(Q801,812,862)	2SD2396
	101	Cap	CNS1472
	102	Resistor	RS1/2PMF102J
	103	Fuse(10A)	CEK1136
	104	Cap	CKX-003
	105	Insulator	CNM8076
	106	Insulator	CNM8128
	107	Spacer	CNM8135

2.3 CD MECHANISM MODULE (S9ARROW)

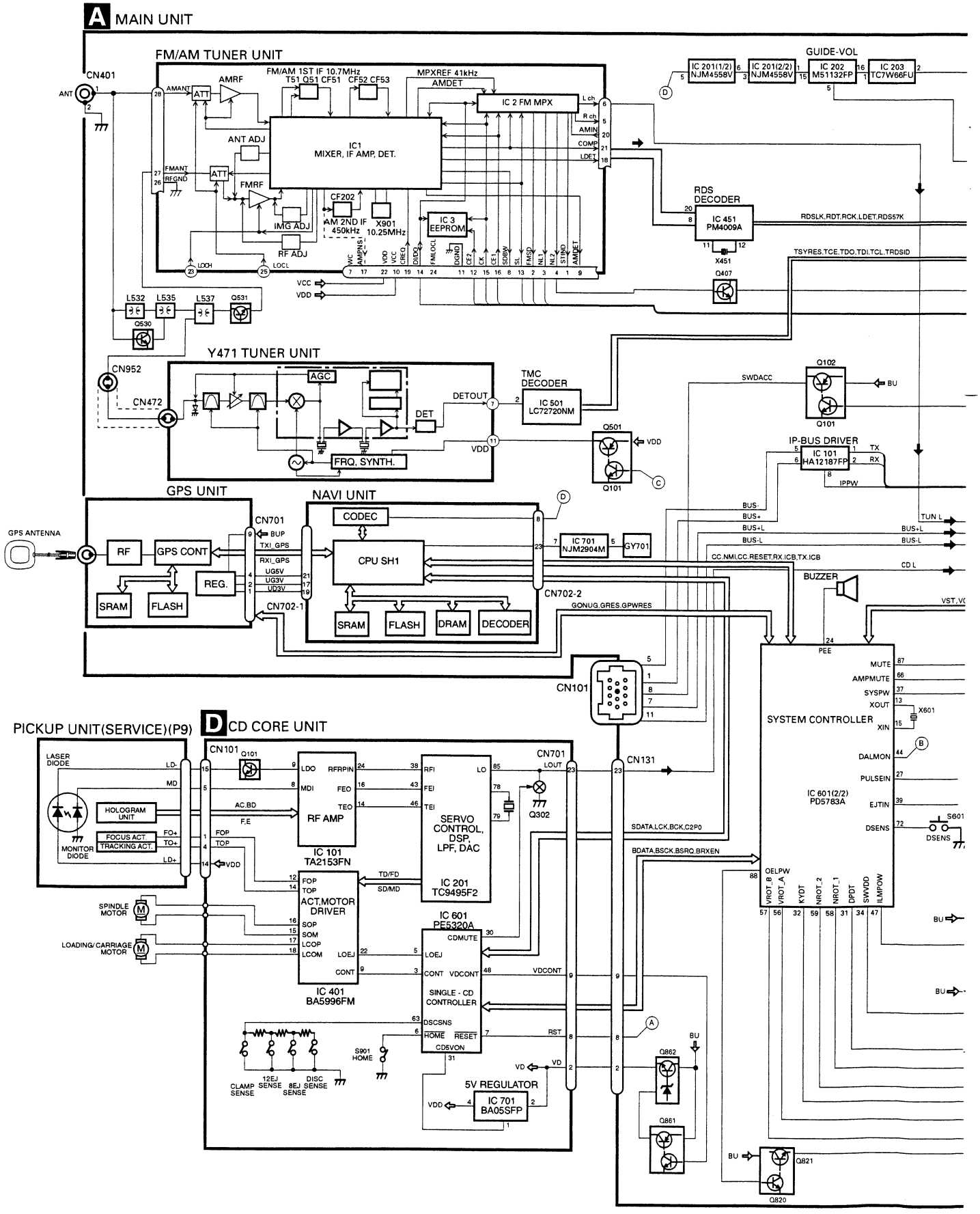


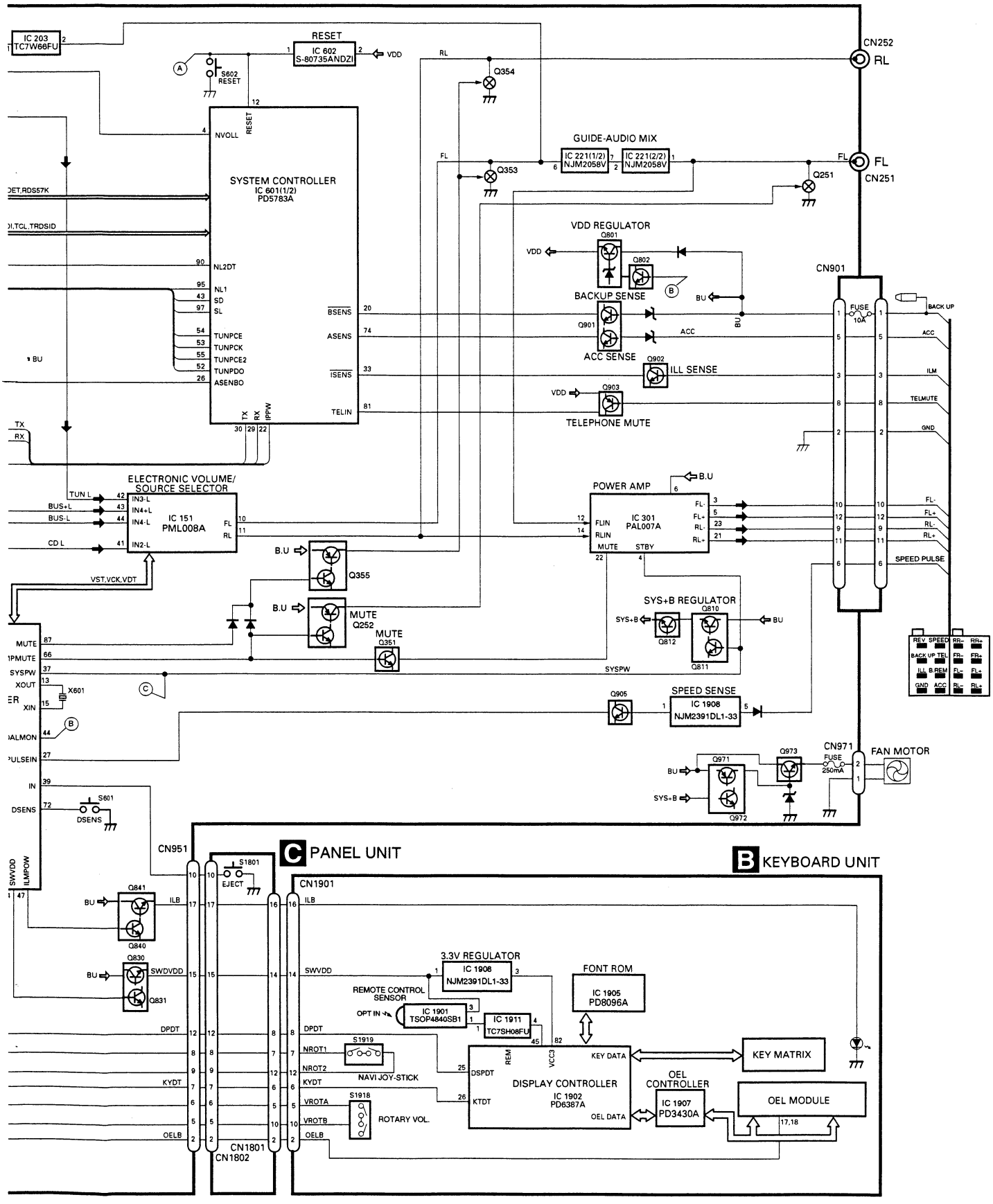
CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	CD Core Unit	CWX2685
	2	Connector(CN701)	CKS1961
	3	Connector(CN101)	CKS3486
	4	Screw	BMZ20P025FMC
	5	Screw	BSZ20P040FMC
	6	Screw(M2x4)	CBA1362
	7	Screw(M2x3)	CBA1527
	8	Screw	CBA1545
	9	Washer	CBF1037
	10	Washer	CBF1038
	11	Washer	CBF1039
	12	Washer	CBF1060
	13	Spring	CBH2378
	14	Spring	CBH2379
	15	Spring	CBH2514
	16	Spring	CBH2533
	17	Spring	CBH2382
	18	Spring	CBH2383
	19	Spring	CBH2384
	20	Spring	CBH2527
	21	Spring	CBH2386
	22	Spring	CBH2537
	23	Spring	CBH2390
	24	Spring	CBH2391
	25	Spring	CBH2523
	26	Spring	CBH2426
	27	Spring	CBH2444
	28	Spring	CBL1561
	29	Spring	CBL1553
	30	Shaft	CLA3845
	31	Roller	CLA3910
	32	Frame	CNC9654
	33	Lever	CNC9664
	34	Lever	CNC8949
	35	Arm	CNC9661
	36	Arm	CNC9016
	37	Arm	CNC9017
	38	Bracket	CNC9123
	39	Frame	CNC9263
	40	Belt	CNT1086
	41	Gear	CNV6886
	42	Gear	CNV6316
	43	Gear	CNV6317
	44	Gear	CNV6318
	45	Gear	CNV6319
	46	Gear	CNV6320
	47	Arm	CNV6322
	48	Arm	CNV6323
	49	Arm	CNV6324
	50	Arm	CNV6888
	51	Arm	CNV6889
	52	Guide	CNV6327
	53	Arm	CNV6924
	54	Guide	CNV6921
	55	Rack	CNV6923
	56	Clamper	CNV6331
	57	Arm	CNV6332
	58	Guide	CNV6333
	59	Cover	CNV6334
	60	Arm	CNV6335
	61	Guide	CNV6336
	62	Roller	CNV6338
	63	Damper	CNV6339
	64	Damper	CNV6340
	65	Guide	CNV6925
	66	Chassis Unit	CXB7980
*	67	Arm Unit	CXB7983
	68	Arm Unit	CXB7984
	69	Arm Unit	CXB7985
	70	Motor Unit(M2)	CXB5903
	71	Screw Unit	CXB5904
	72	Gear Unit	CXB8076
	73	Bracket Unit	CXB7982
	74	Motor Unit(M1)	CXB6007
	75	Arm Unit	CXB8504
	76	Screw(M2x5)	EBA1028
	77	Screw	JFZ20P020FMC
	78	Screw	JGZ17P020FZK
	79	Washer	YE15FUC
	80	Washer	YE20FUC
	81	Pickup Unit(Service)(P9)	CXX1480
	82	Screw	IMS26P030FMC
	83	Guide	CNV6922
	84	Roller	CNV6887
	85	Spring	CBH2509
	86	Spring	CBH2512
	87	Spring	CBH2536
	88	Collar	CNV6906

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM




IC 203
TC7W66FU
RESET
IC 602
S-80735ANDZI
VDD
S602
RESET
SYSTEM CONTROLLER
IC 601(1/2)
PD5783A
NVOLL
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NL2DT
NL1
SD
SL
TUNPCE
TUNPCK
TUNPCE2
TUNPDO
ASENBO
BSENS
ASENS
ISENS
TELIN
TX
RX
IPPW
RL
FL
Q354
Q353
Q251
GUIDE-AUDIO MIX
IC 221(1/2)
NJM2058V
IC 221(2/2)
NJM2058V
CN252
RL
FL
CN251
VDD REGULATOR
Q801
Q802
VDD
BU
BACKUP SENSE
Q901
ACC
ACC SENSE
Q902
ILL SENSE
Q903
TELEPHONE MUTE
CN901
FUSE
10A
BACK UP
ACC
ILM
TELMUTE
GND
SPEED PULSE
ELECTRONIC VOLUME/
SOURCE SELECTOR
IC 151
PML008A
TUN L
BUS+L
BUS-L
CD L
IN3-L
IN4+L
IN4-L
IN2-L
VST,VCK,VDT
POWER AMP
IC 301
PAL007A
FLIN
RLIN
MUTE
STBY
B.U
Q355
MUTE
Q252
MUTE
Q351
SYS+B REGULATOR
Q810
Q811
Q812
SYSPW
X601
XOUT
XIN
SPEED SENSE
Q905
IC 1908
NJM2391DL1-33
Q971
Q973
Q972
CN971
FUSE
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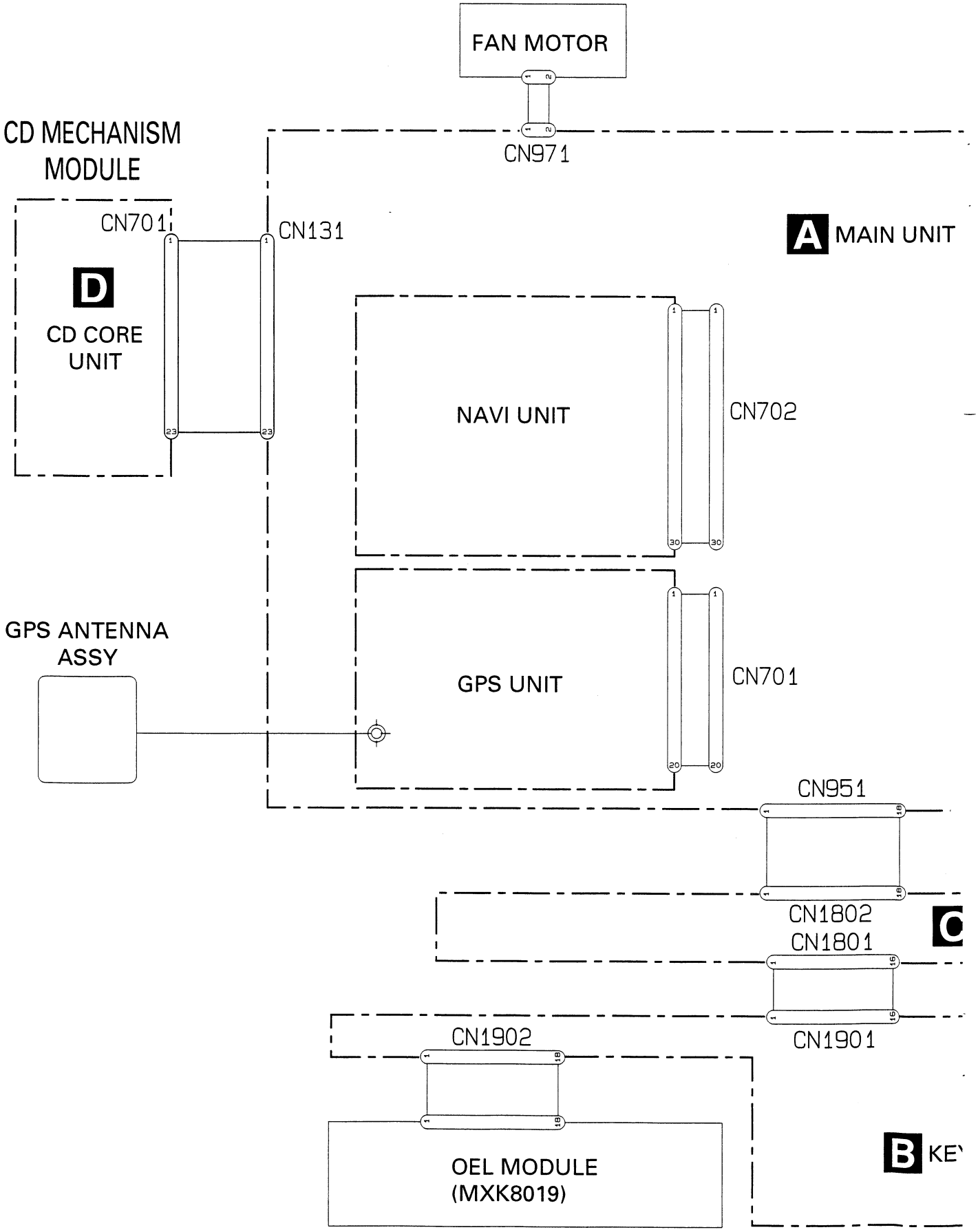
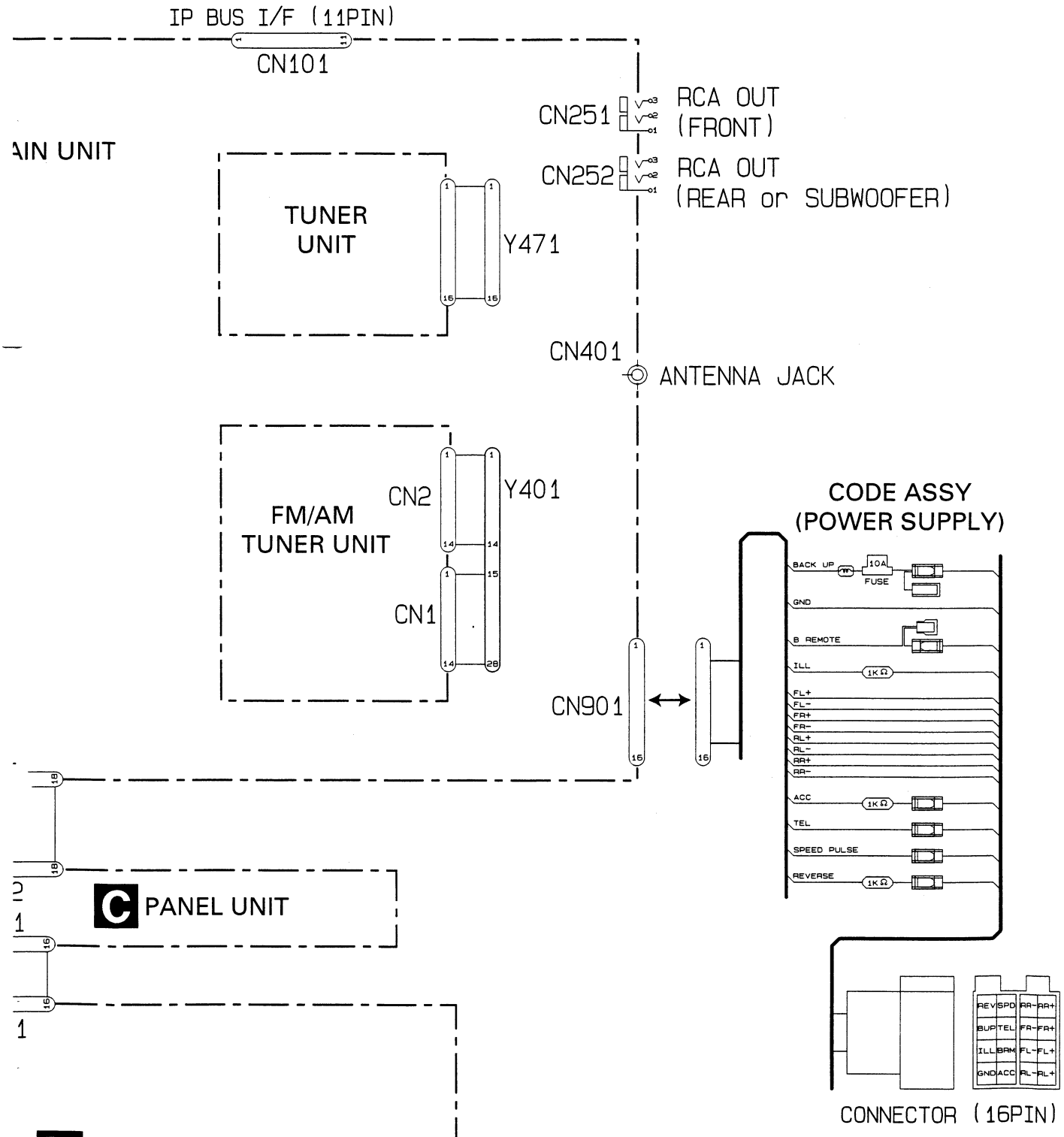
FAN MOTOR
S601
DSENS
CN951
S1801
EJECT
C PANEL UNIT
B KEYBOARD UNIT
CN1901
Q841
Q840
Q830
Q831
ILB
SWVDD
DPDT
KYDT
OELB
3.3V REGULATOR
IC 1908
NJM2391DL1-33
FONT ROM
IC 1905
PD8096A
REMOTE CONTROL
SENSOR
OPT IN
IC 1901
TSOP4840SB1
IC 1911
TC7SH08FU
S1919
NAVI JOY-STICK
S1918
ROTARY VOL.
NROT1
NROT2
VROTA
VROTB
DISPLAY CONTROLLER
IC 1902
PD6387A
KEY DATA
OEL DATA
KEY MATRIX
OEL
CONTROLLER
IC 1907
PD3430A
OEL MODULE
CN1801
CN1802

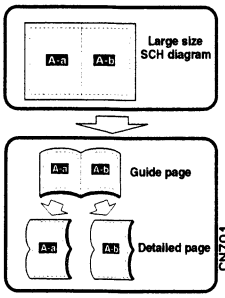
3.2 OVERALL CONNECTION DIAGRAM



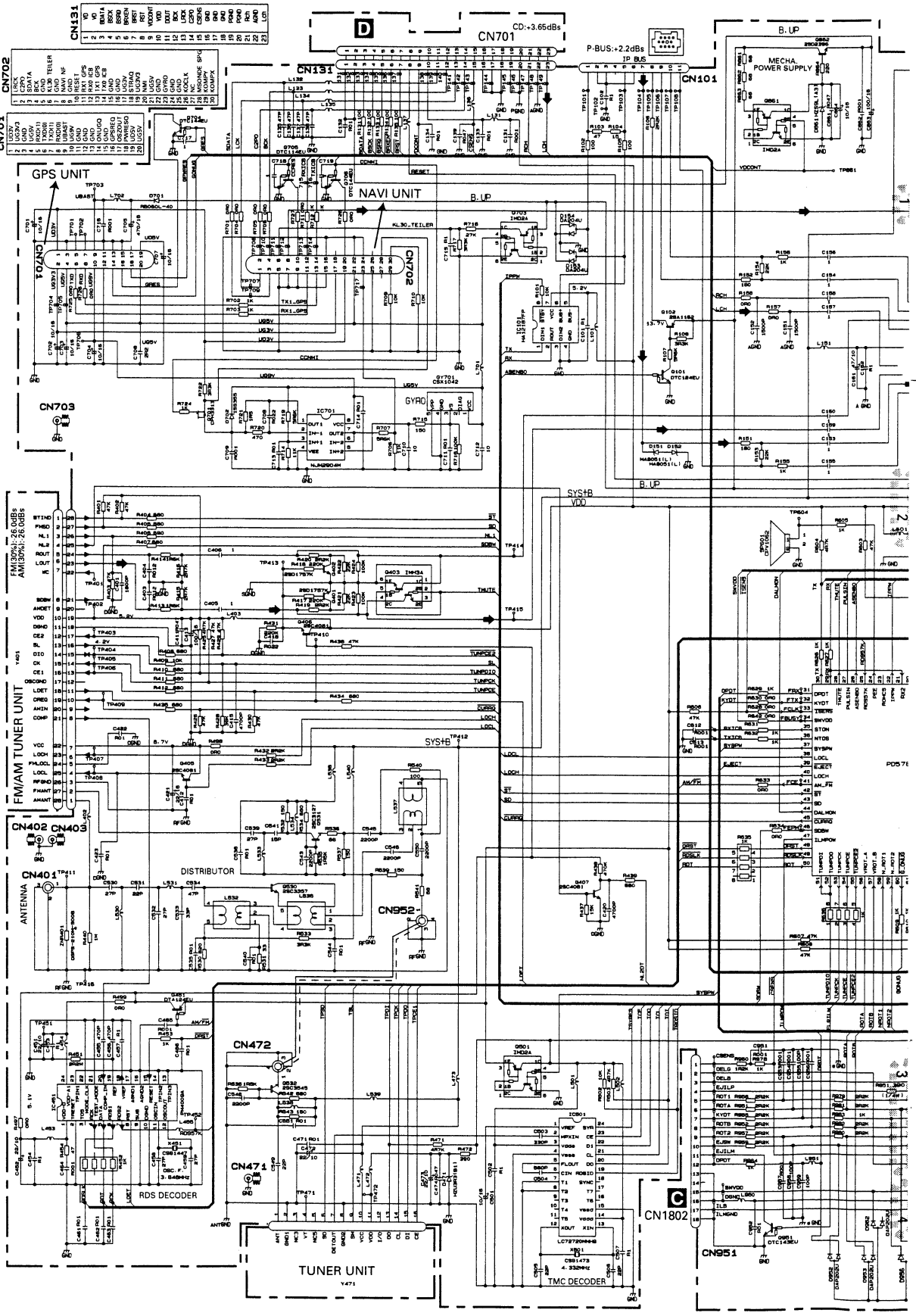

IP BUS I/F (11PIN)
CN101
AIN UNIT
CN251
RCA OUT
(FRONT)
CN252
RCA OUT
(REAR or SUBWOOFER)
TUNER
UNIT
Y471
CN401
ANTENNA JACK
FM/AM
TUNER UNIT
CN2
Y401
CN1
CN901
CODE ASSY
(POWER SUPPLY)
BACK UP
10A
FUSE
GND
B REMOTE
ILL
1K Ω
FL+
FL-
FR+
FR-
RL+
RL-
RR+
RR-
ACC
1K Ω
TEL
SPEED PULSE
REVERSE
1K Ω
REV SPD RR- RR+
BUP TEL FR- FR+
ILL BAM FL- FL+
GND ACC RL- RL+
CONNECTOR (16PIN)
C PANEL UNIT
B KEYBOARD UNIT

3.3 MAIN UNIT(GUIDE PAGE)

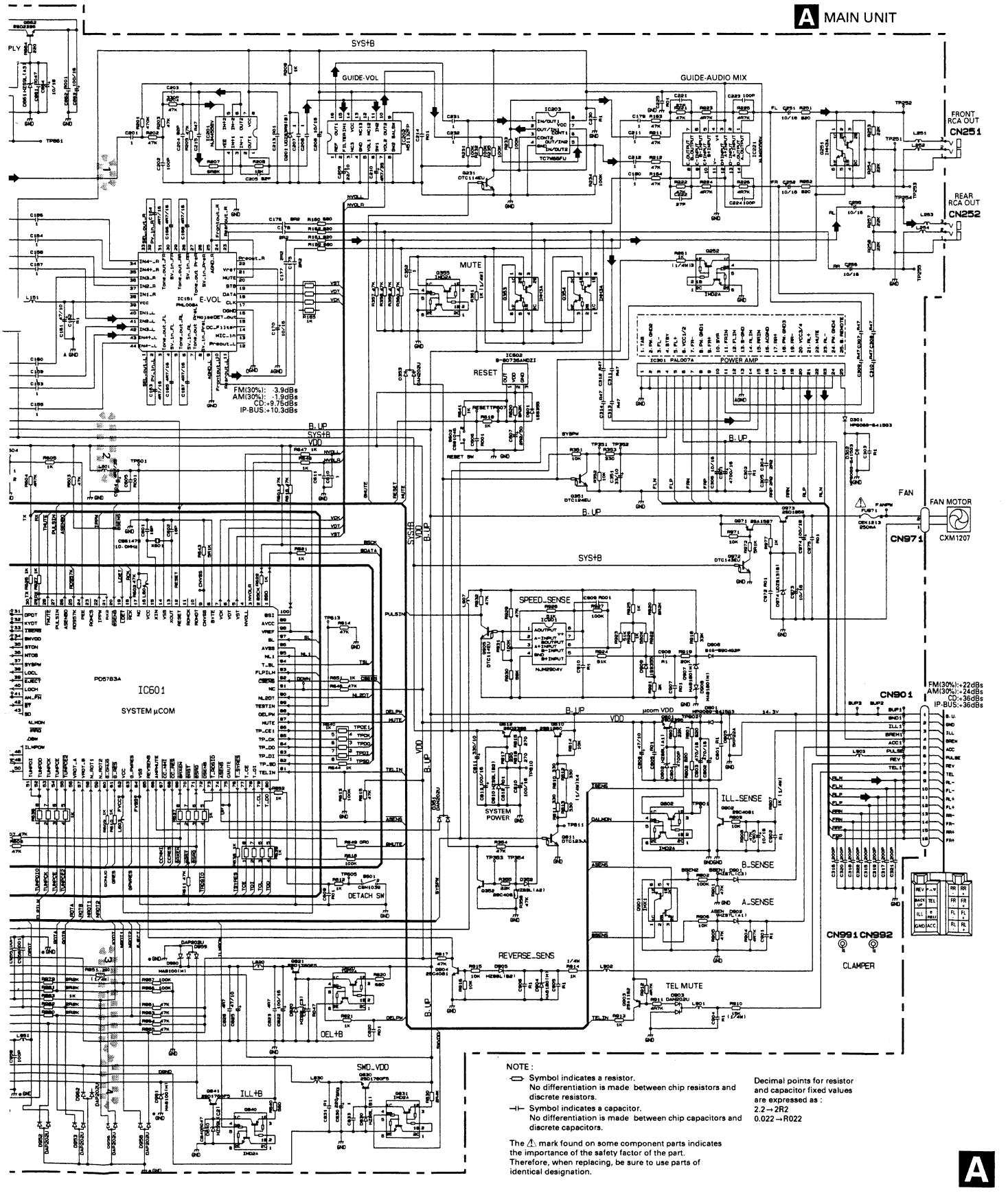
Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

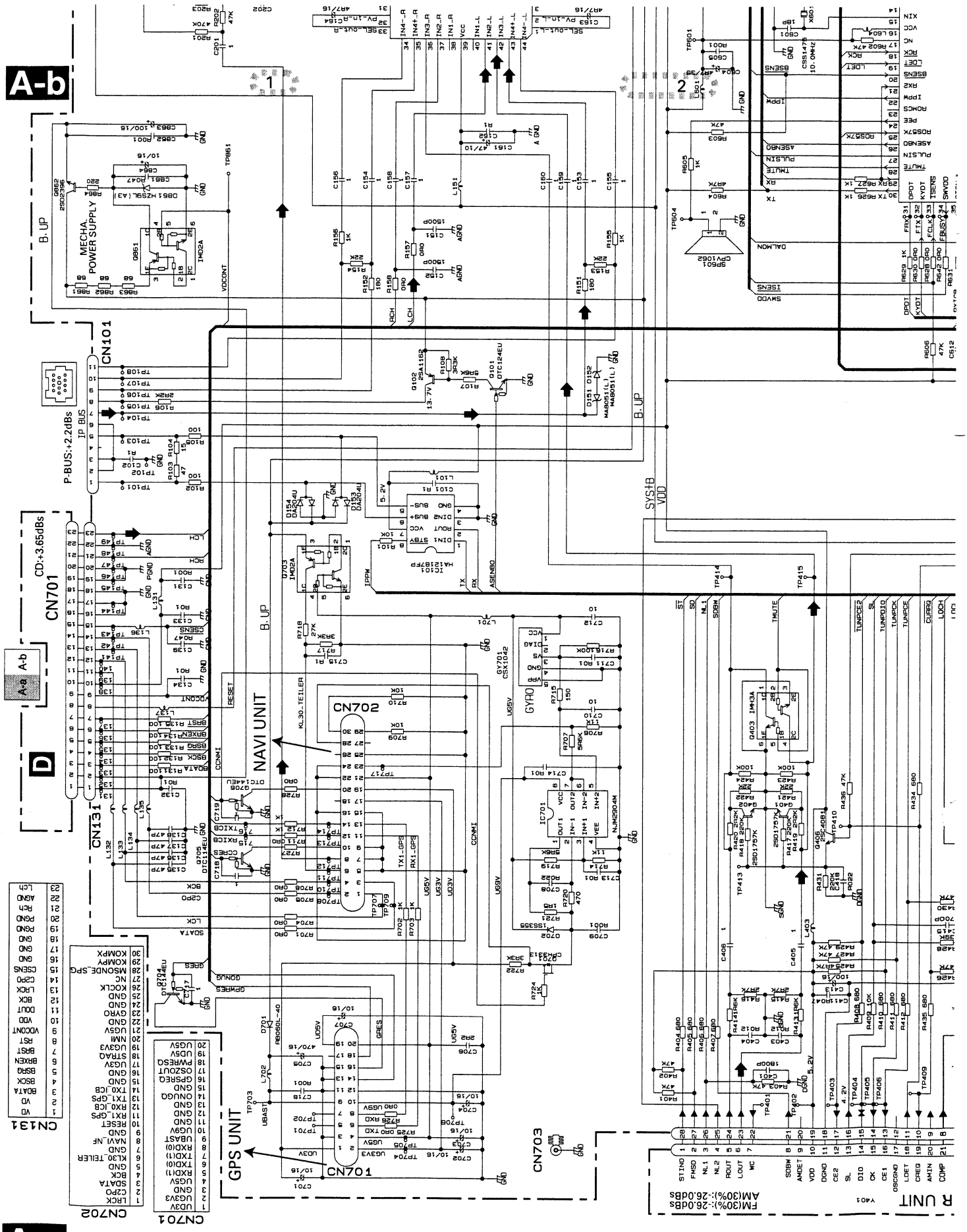


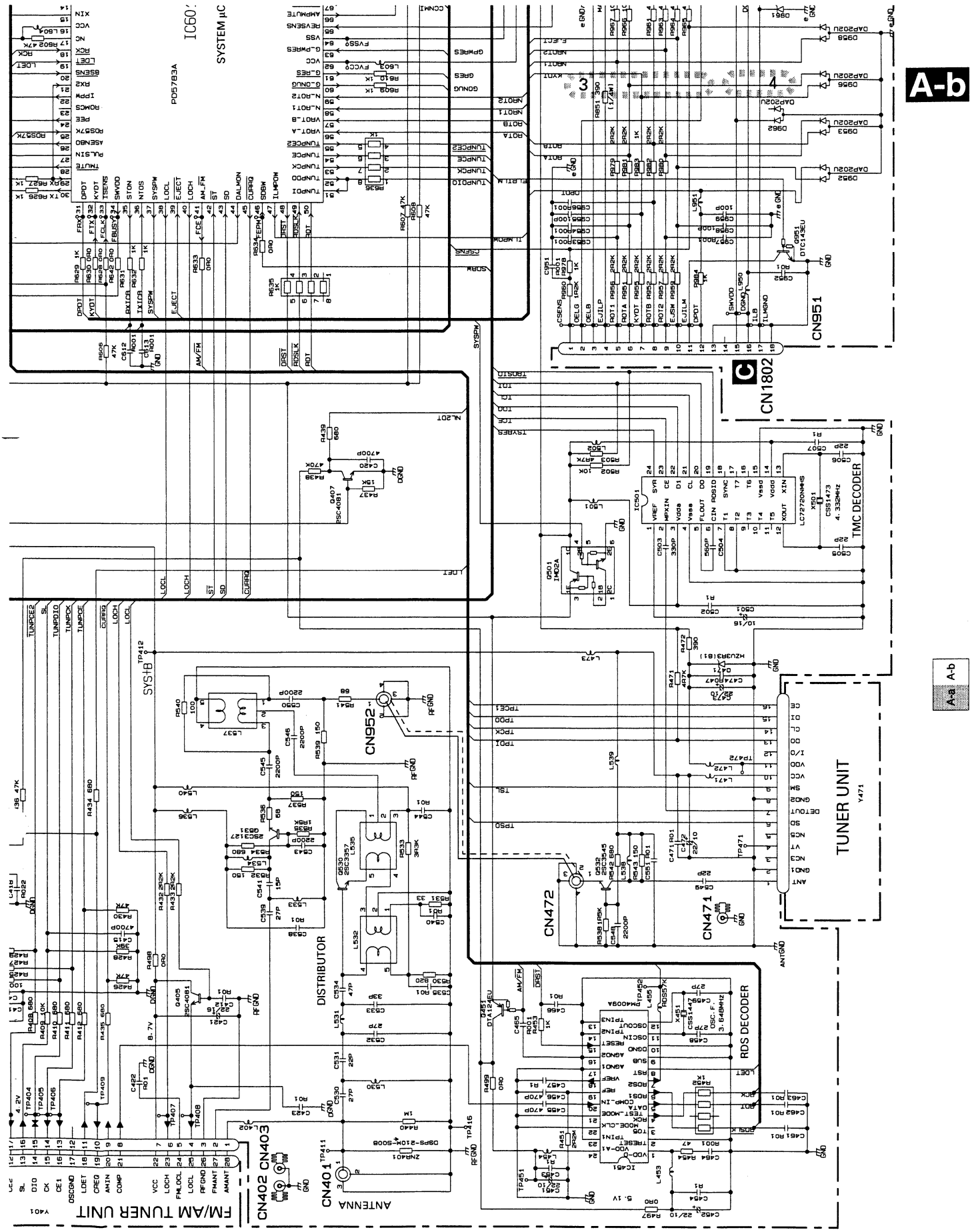
A-a

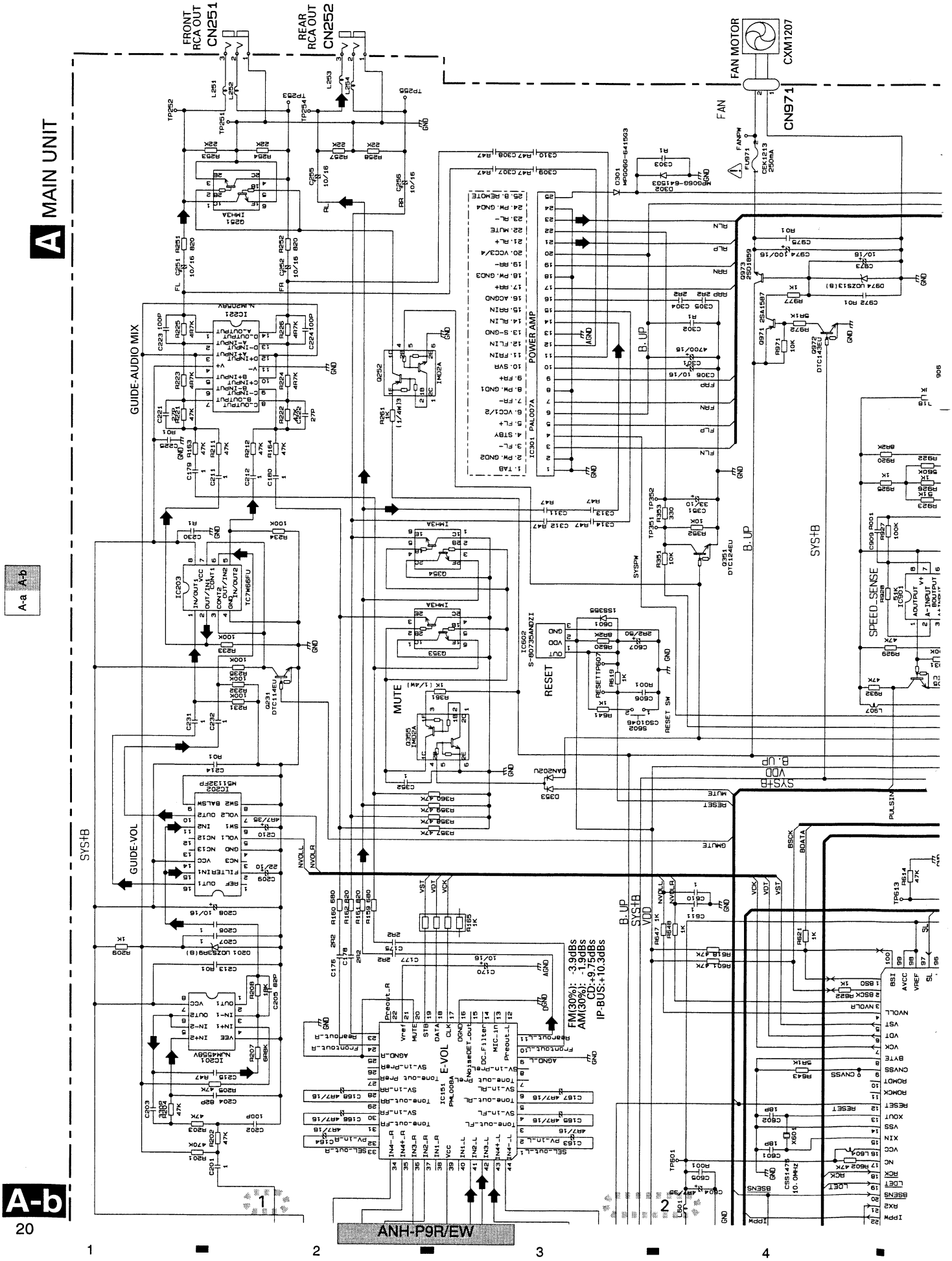


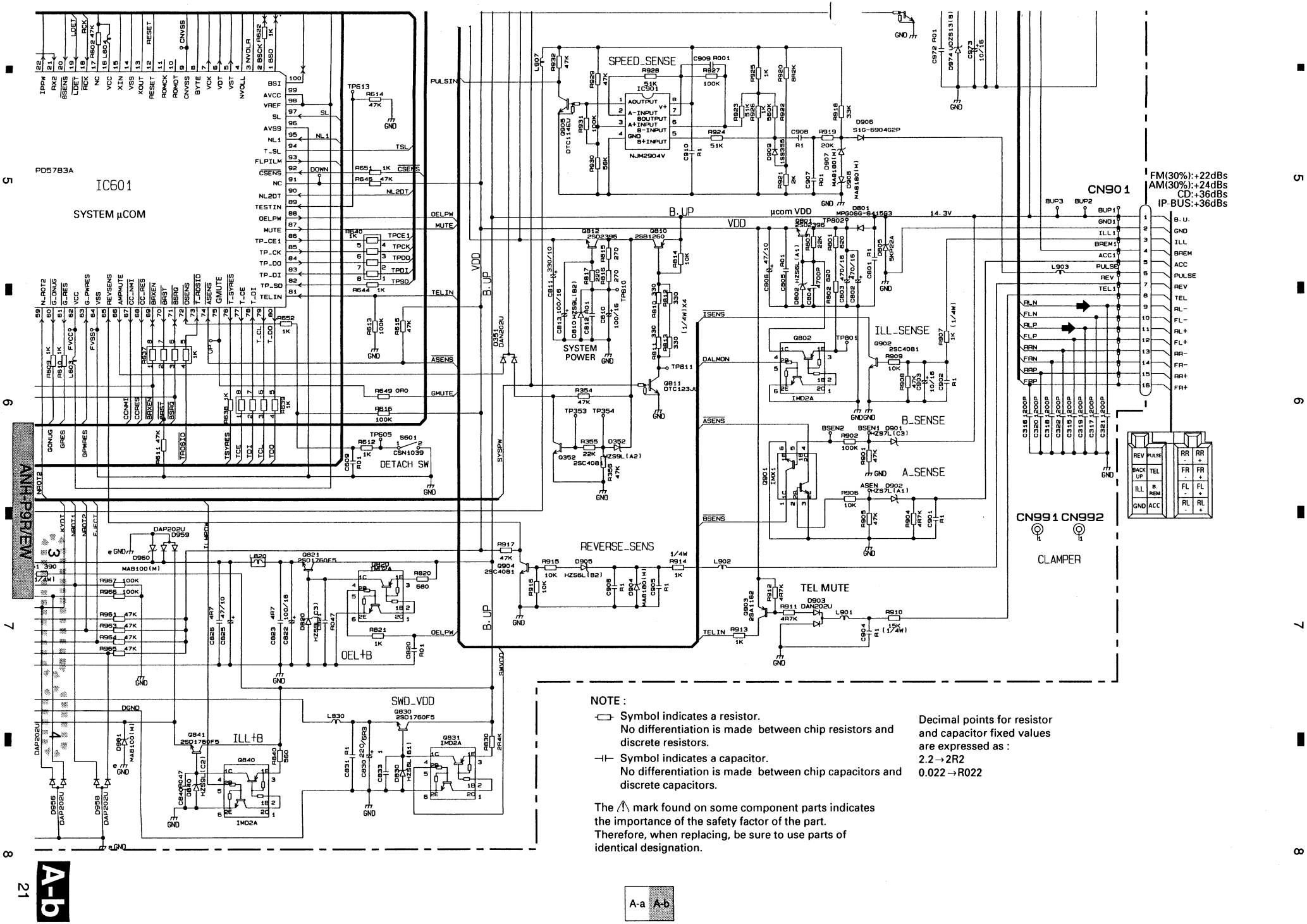
A-b


A MAIN UNIT
SYS+B
GUIDE-VOL
GUIDE-AUDIO MIX
FRONT RCA OUT
CN251
REAR RCA OUT
CN252
MUTE
E-VOL
RESET
POWER AMP
FM(30%): 3.9dBs
AM(30%): -1.9dBs
CD:+9.75dBs
IP-BUS:+10.3dBs
B_UP
SYS+B
VDD
FAN
FAN MOTOR
CN971
CXM1207
SPEED_SENSE
IC601
SYSTEM µCOM
µcom VDD
SYSTEM POWER
ILL_SENSE
B_SENSE
A_SENSE
DETACH SW
REVERSE_SENS
TEL MUTE
OEL+B
ILL+B
SWD_VDD
CN901
FM(30%):+22dBs
AM(30%):+24dBs
CD:+36dBs
IP-BUS:+36dBs
CN991 CN992
CLAMPER
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

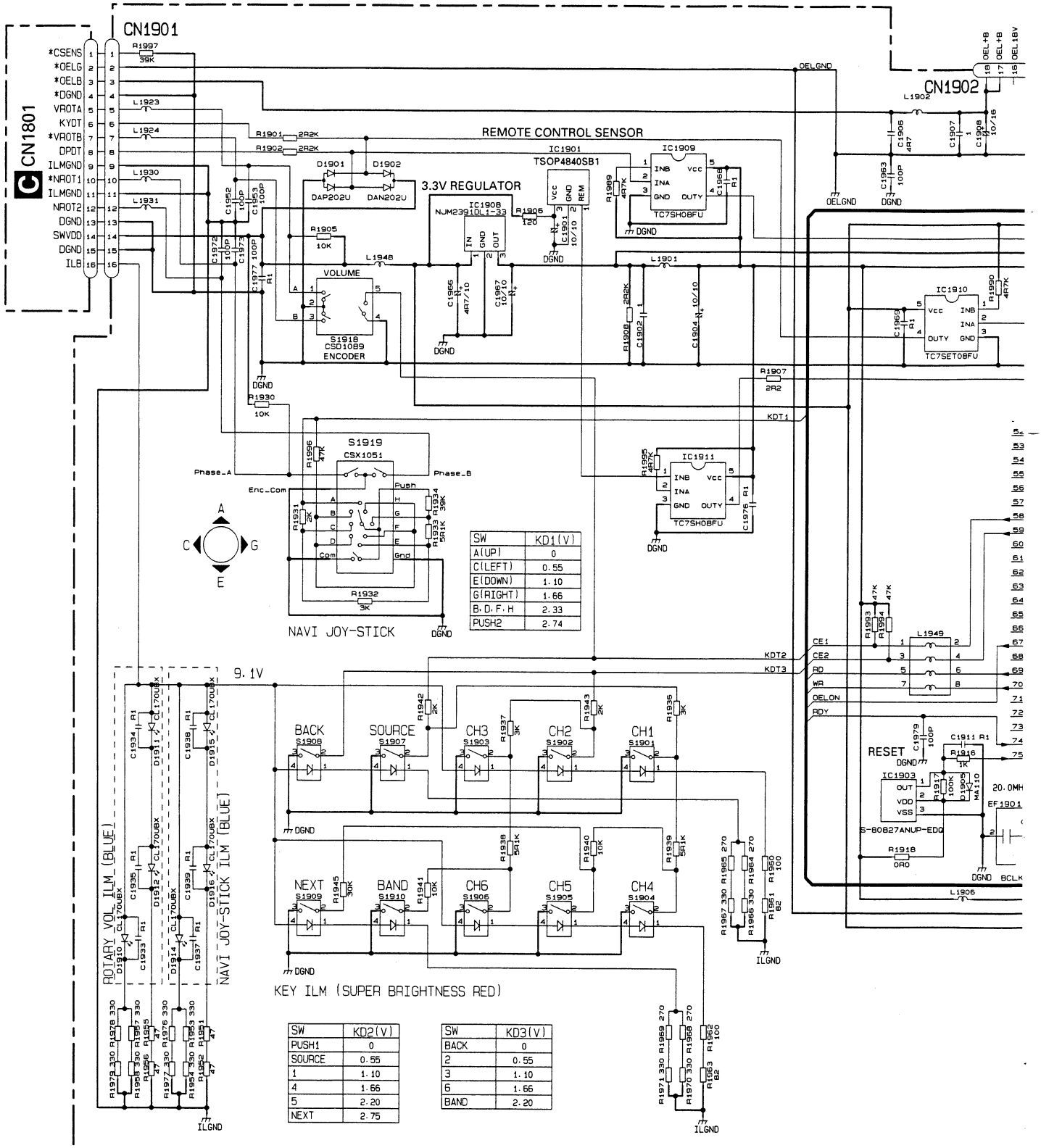

A-b
A-a
D
MECHA POWER SUPPLY
B.UP
CN101
CN701
CN131
CN702
CN703
CN702
CN701
NAVI UNIT
GPS UNIT
R UNIT
GYRO
SYS+B
VDD
P-BUS:+2.2dBs
CD:+3.65dBs
FM(30%):-26.0dBs
AM(30%):-26.0dBs


A-b
A-a
CN951
CN1802
TMC DECODER
TUNER UNIT
RDS DECODER
DISTRIBUTOR
SYSTEM µC
FM/AM TUNER UNIT
ANTENNA
CN402 CN403
CN401
CN952
CN472
CN471


A MAIN UNIT
FRONT RCA OUT CN251
REAR RCA OUT CN252
FAN MOTOR CXM1207
FAN
CN971
GUIDE-AUDIO MIX
GUIDE-VOL
SYS+B
B.UP
VDD
MUTE
RESET
SPEED_SENSE
POWER AMP
IC301 PAL007A
E-VOL
IC151 PML008A
FM(30%): -3.9dBs
AM(30%): -1.9dBs
CD:+9.75dBs
IP-BUS:+10.3dBs
A-b
20
ANH-P9R/EW


IC601
SYSTEM µCOM
PD5783A
ANH-P9R/EW
SPEED_SENSE
IC901
NJM2904V
SYSTEM POWER
ILL_SENSE
B_SENSE
A_SENSE
REVERSE_SENS
TEL MUTE
DETACH SW
CLAMPER
CN901
CN991 CN992
OEL+B
ILL+B
SWD_VDD
FM(30%):+22dBs
AM(30%):+24dBs
CD:+36dBs
IP-BUS:+36dBs
14.3V
µcom VDD
B.UP
VDD
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022
A-a A-b
A-b
21

3.4 KEYBOARD UNIT



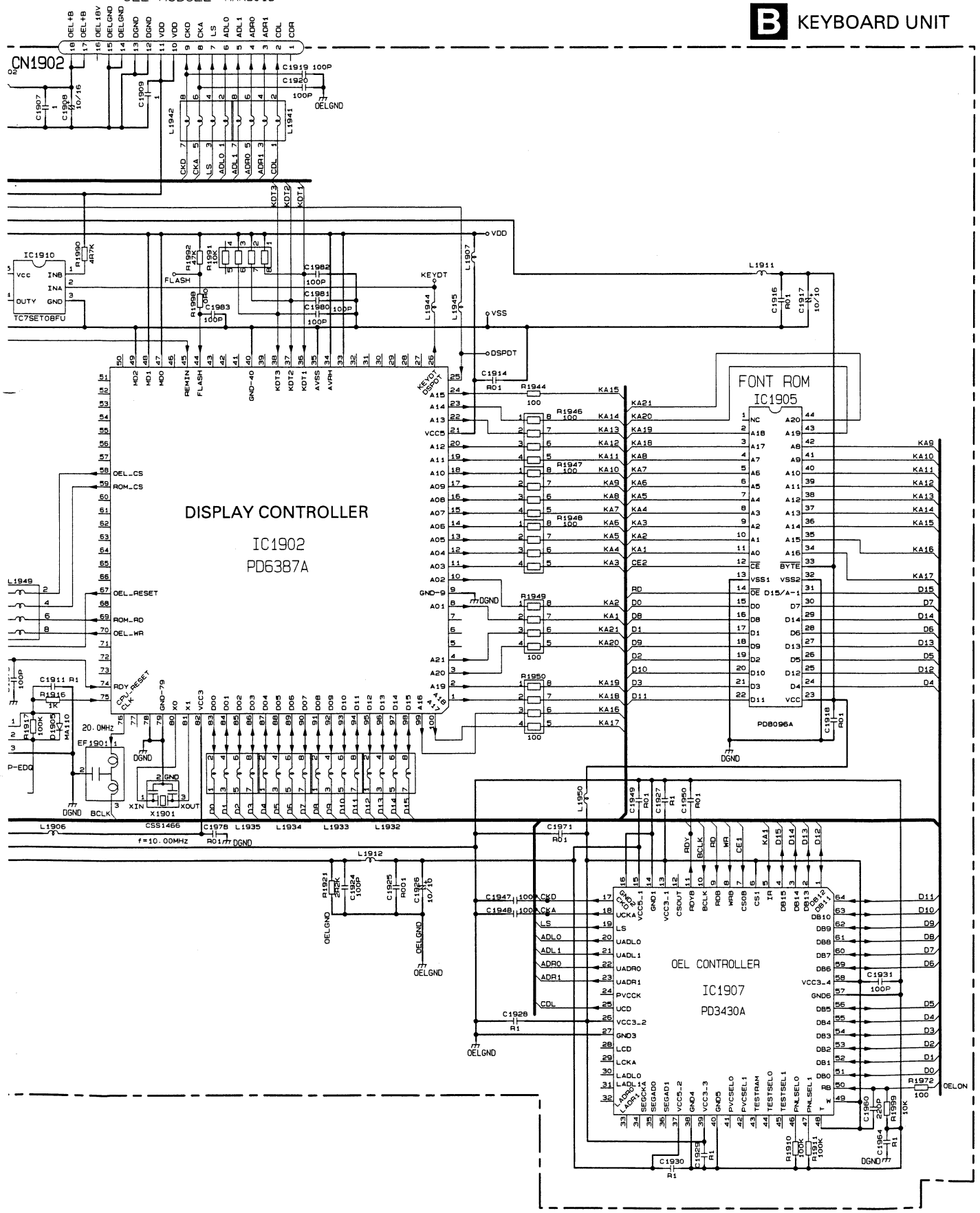
SW	KD1(V)
A(UP)	0
C(LEFT)	0.55
E(DOWN)	1.10
G(RIGHT)	1.66
B.D.F.H	2.33
PUSH2	2.74

SW	KD2(V)
PUSH1	0
SOURCE	0.55
1	1.10
4	1.66
5	2.20
NEXT	2.75

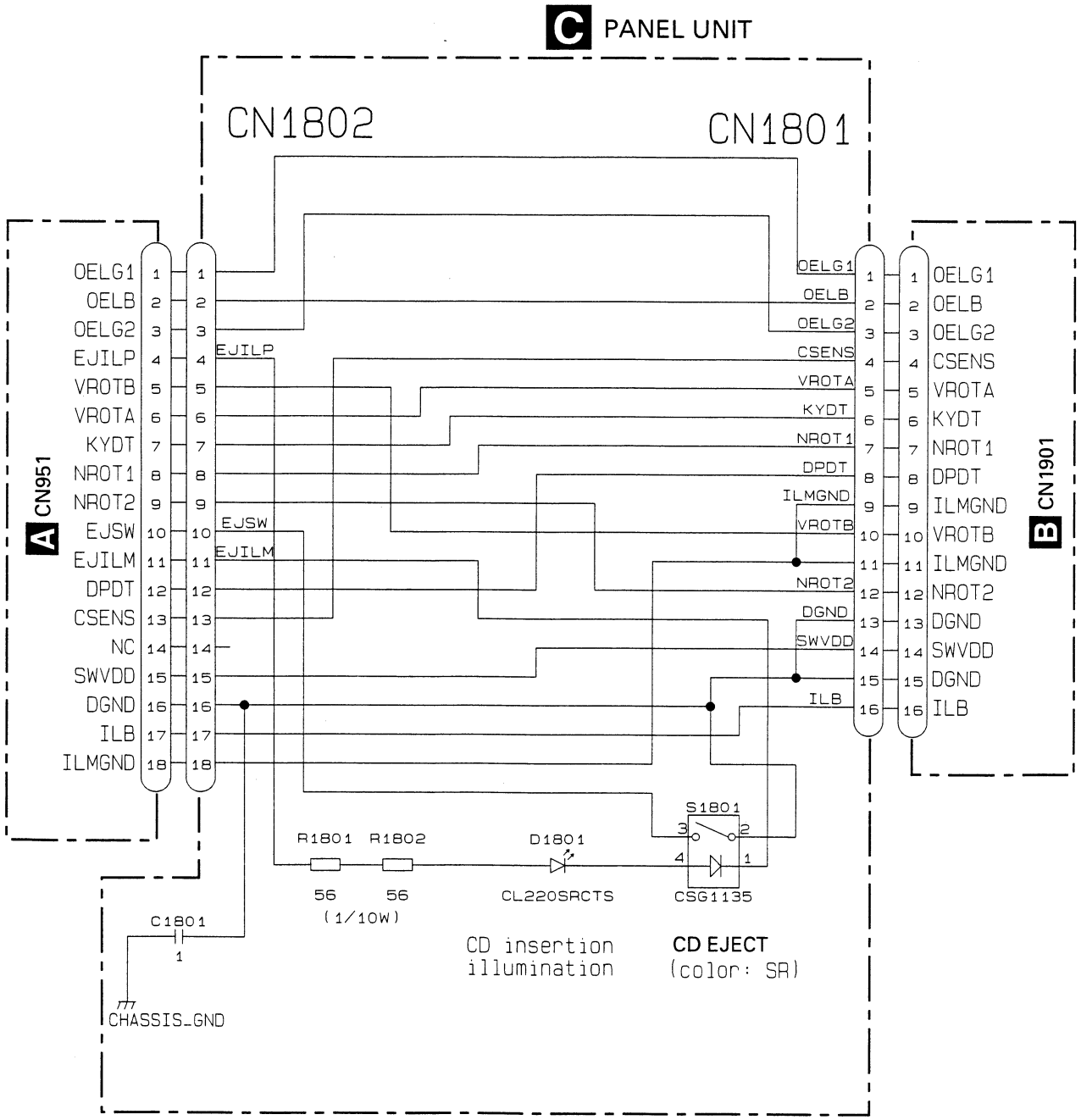
SW	KD3(V)
BACK	0
2	0.55
3	1.10
6	1.66
BAND	2.20

OEL MODULE MXK8019

B KEYBOARD UNIT



3.5 PANEL UNIT



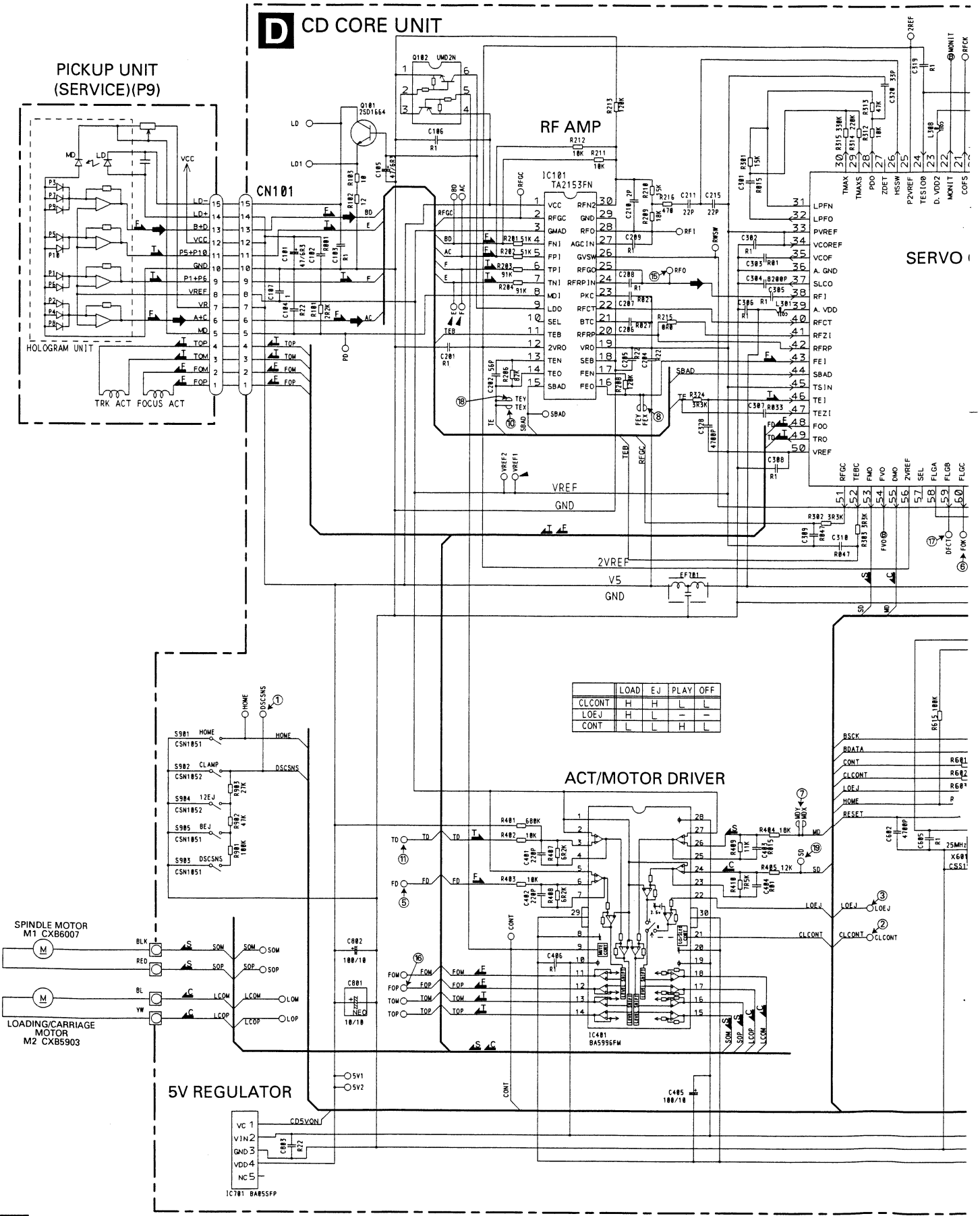
A

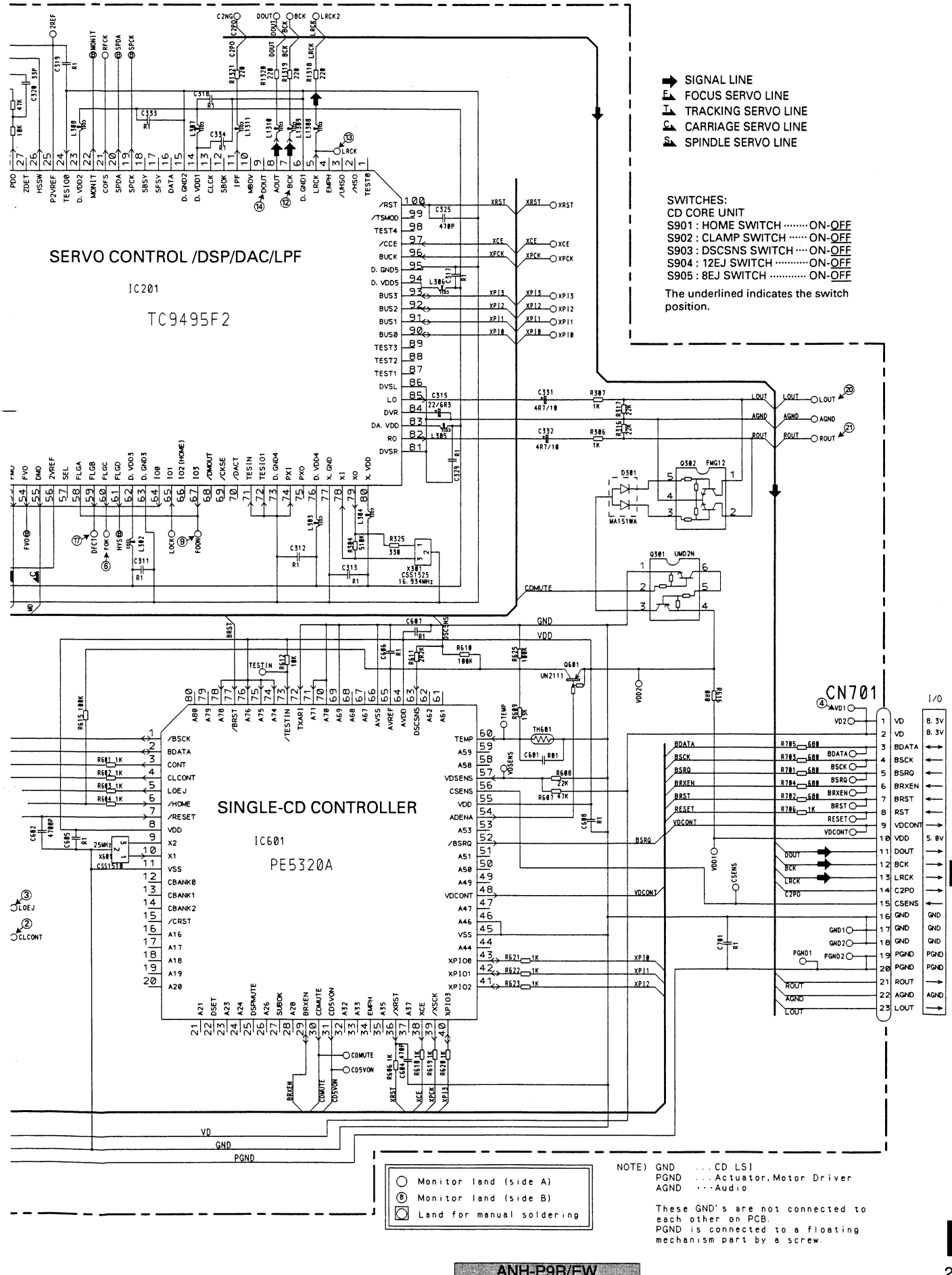
B

C

D

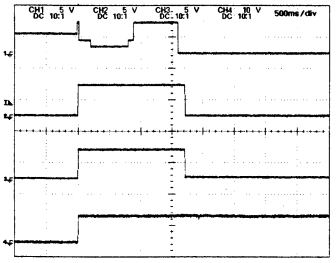
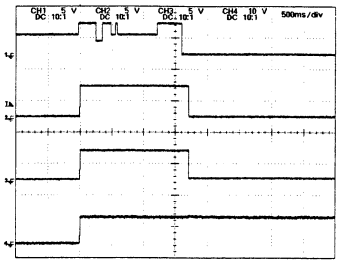
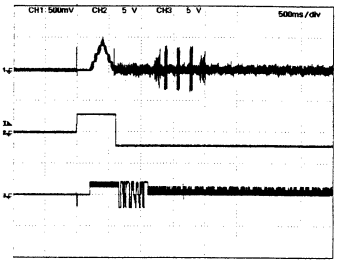
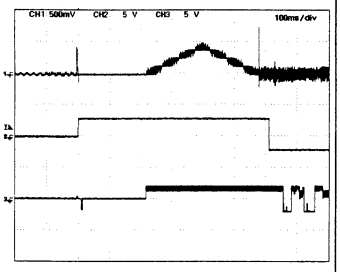
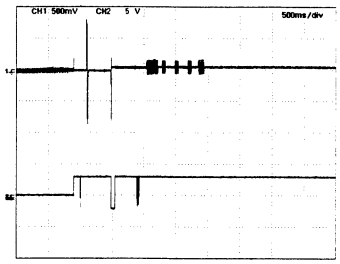
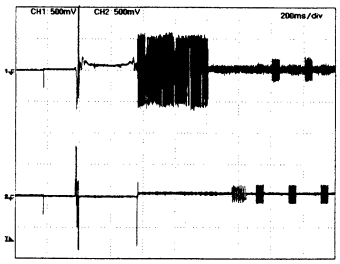
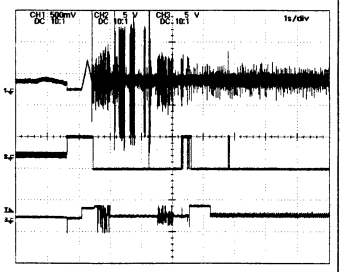
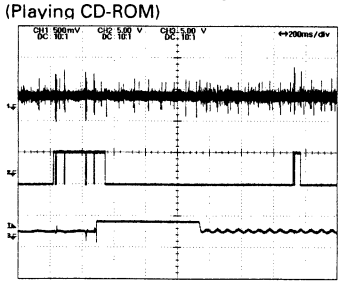
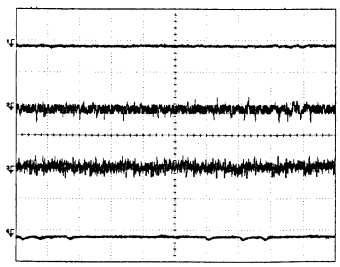
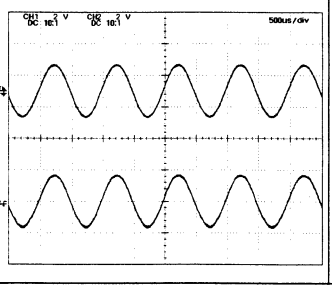
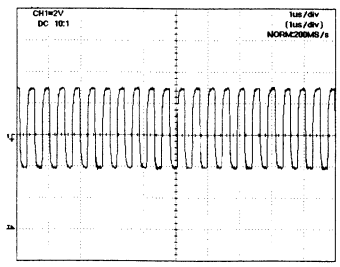
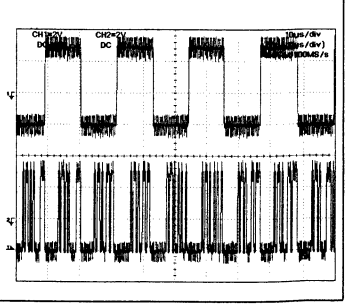
3.6 CD MECHANISM MODULE




SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
SWITCHES:
CD CORE UNIT
S901 : HOME SWITCH ····· ON-OFF
S902 : CLAMP SWITCH ····· ON-OFF
S903 : DSCSNS SWITCH ···· ON-OFF
S904 : 12EJ SWITCH ····· ON-OFF
S905 : 8EJ SWITCH ····· ON-OFF
The underlined indicates the switch position.
SERVO CONTROL /DSP/DAC/LPF
IC201
TC9495F2
SINGLE-CD CONTROLLER
IC601
PE5320A
CN701
I/O
CN131
Monitor land (side A)
Monitor land (side B)
Land for manual soldering
NOTE) GND ...CD LSI
PGND ...Actuator, Motor Driver
AGND ···Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating mechanism part by a screw.

Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
VREF:2.1V

● Waveforms

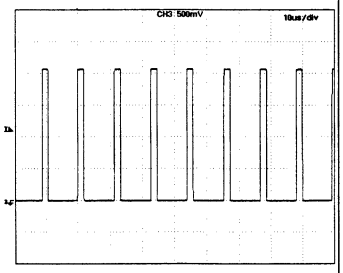
① CH1:DSCSNS 5V/div. ② CH2:CLCONT 5V/div. ③ CH3:LOEJ 5V/div. ④ CH4:VD 10V/div. When loading (12 cm CD) Ref. : GND Mode : Normal 	① CH1:DSCSNS 5V/div. ② CH2:CLCONT 5V/div. ③ CH3:LOEJ 5V/div. ④ CH4:VD 10V/div. When loading (8 cm CD) Ref. : GND Mode : Normal 	⑤ CH1:FD 500mV/div. ⑥ CH2:FOK 5V/div. ⑦ CH3:MD 5V/div. When setting up "Source On" Ref. : VREF Mode : Normal 
⑤ CH1:FD 500mV/div. ⑥ CH2:FOK 5V/div. ⑦ CH3:MD 5V/div. Magnified drawing for "time" Ref. : VREF Mode : Normal 	⑧ CH1:FE 500mV/div. ⑨ CH2:FOON 5V/div. When setting up "Source On" Ref. : VREF Mode : Normal 	⑩ CH1:TE 500mV/div. ⑧ CH2:FE 500mV/div. When setting up "Source On" Ref. : VREF Mode : Normal 
⑤ CH1:FD 500mV/div. ⑥ CH2:FOK 5V/div. ⑦ CH3:MD 5V/div. Playing at a double speed after the source switching to ON (Playing CD-ROM) Ref. : VREF Mode : Normal 	⑤ CH1:FD 500mV/div. ⑥ CH2:FOK 5V/div. ⑦ CH3:MD 5V/div. Figure of waveforms of kick bias to switch to double-speed mode with a magnified time scale (Playing CD-ROM) Ref. : VREF Mode : Normal 	⑧ CH1:FE 500mV/div. ⑤ CH2:FD 500mV/div. ⑩ CH3:TE 500mV/div. ⑪ CH4:TD 500mV/div. During "Play" Ref. : VREF Mode : Normal 
⑳ CH1:LOUT 2V/div. ㉑ CH2:ROUT 2V/div. Sine wave(1kHz/0dB) play Ref. : GND Mode : Normal 	⑫ CH1:BCK 2V/div. 1µs/div. During "Play" Ref. : VREF Mode : Normal 	⑬ CH1:LRCK 2V/div. ⑭ CH2:DOUT 2V/div. 10µs/div. During "Play" Ref. : VREF Mode : Normal 

⑦ CH1:MD 500mV/div. 10µs/div.

During "Play"

Ref. : VREF

Mode : Normal

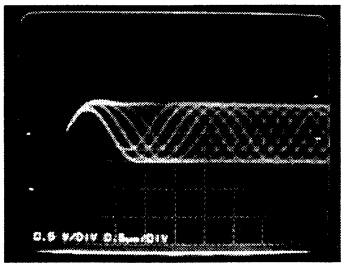


⑮ CH1:RFO 500mV/div. 0.5µs/div.

During "Play"

Ref. : VREF

Mode : Normal

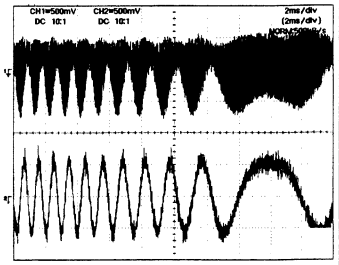


⑮ CH1:RFO 500mV/div.
⑩ CH2:TE 500mV/div. 2ms/div.

During "Tracking Open"

Ref. : VREF

Mode : Test

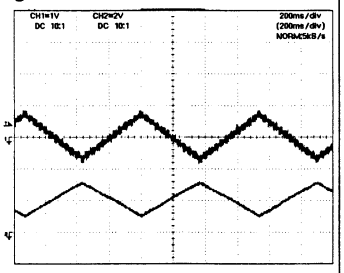


⑤ CH1:FD 1V/div.
⑯ CH2:FOP 2V/div. 200ms/div.

With no disk inserted
During "Focus Close"

Ref. : VREF

Mode : Test

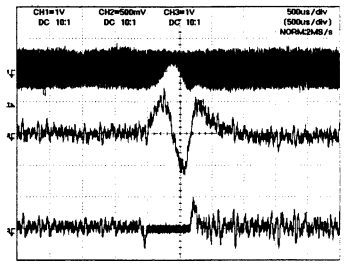


⑮ CH1:RFO 1V/div.
⑩ CH2:TE 500mV/div. 500µs/div.
⑪ CH3:TD 1V/div.

1 Track Jump

Ref. : VREF

Mode : Test

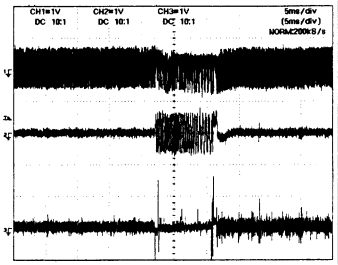


⑮ CH1:RFO 1V/div.
⑩ CH2:TE 1V/div. 5ms/div.
⑪ CH3:TD 1V/div.

32 Track Jump

Ref. : VREF

Mode : Test

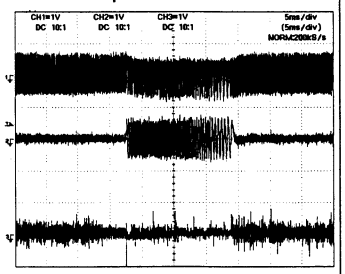


⑮ CH1:RFO 1V/div.
⑩ CH2:TE 1V/div. 5ms/div.
⑪ CH3:TD 1V/div.

100 Track Jump

Ref. : VREF

Mode : Test

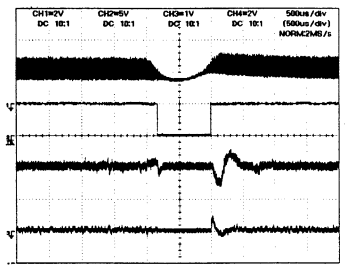


⑮ CH1:RFO 2V/div.
⑰ CH2:DFCT 5V/div. 500µs/div.
⑤ CH3:FD 1V/div.
⑪ CH4:TD 2V/div.

When reproducing black dots (800µm)

Ref. : VREF

Mode : Normal

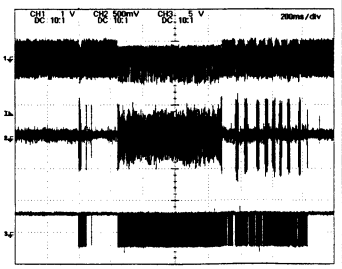


⑮ CH1:RFO 1V/div.
⑩ CH2:TE 500mV/div. 200ms/div.
⑰ CH3:DFCT 5V/div.

During inside/outside search

Ref. : VREF

Mode : Normal

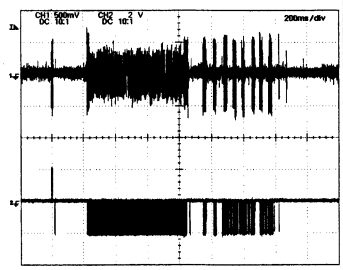


⑱ CH1:TEY 500mV/div. 200ms/div.
⑲ CH2:SD 2V/div.

During inside/outside search

Ref. : VREF

Mode : Normal

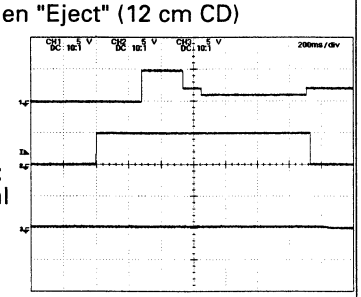


① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div. 200ms/div.
③ CH3:LOEJ 5V/div.

When "Eject" (12 cm CD)

Ref. : GND

Mode : Normal

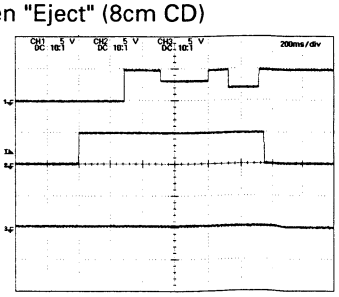


① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div. 200ms/div.
③ CH3:LOEJ 5V/div.

When "Eject" (8cm CD)

Ref. : GND

Mode : Normal

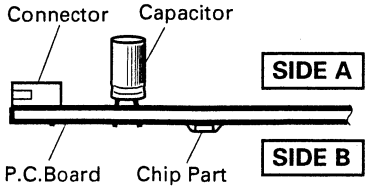


4. PCB CONNECTION DIAGRAM

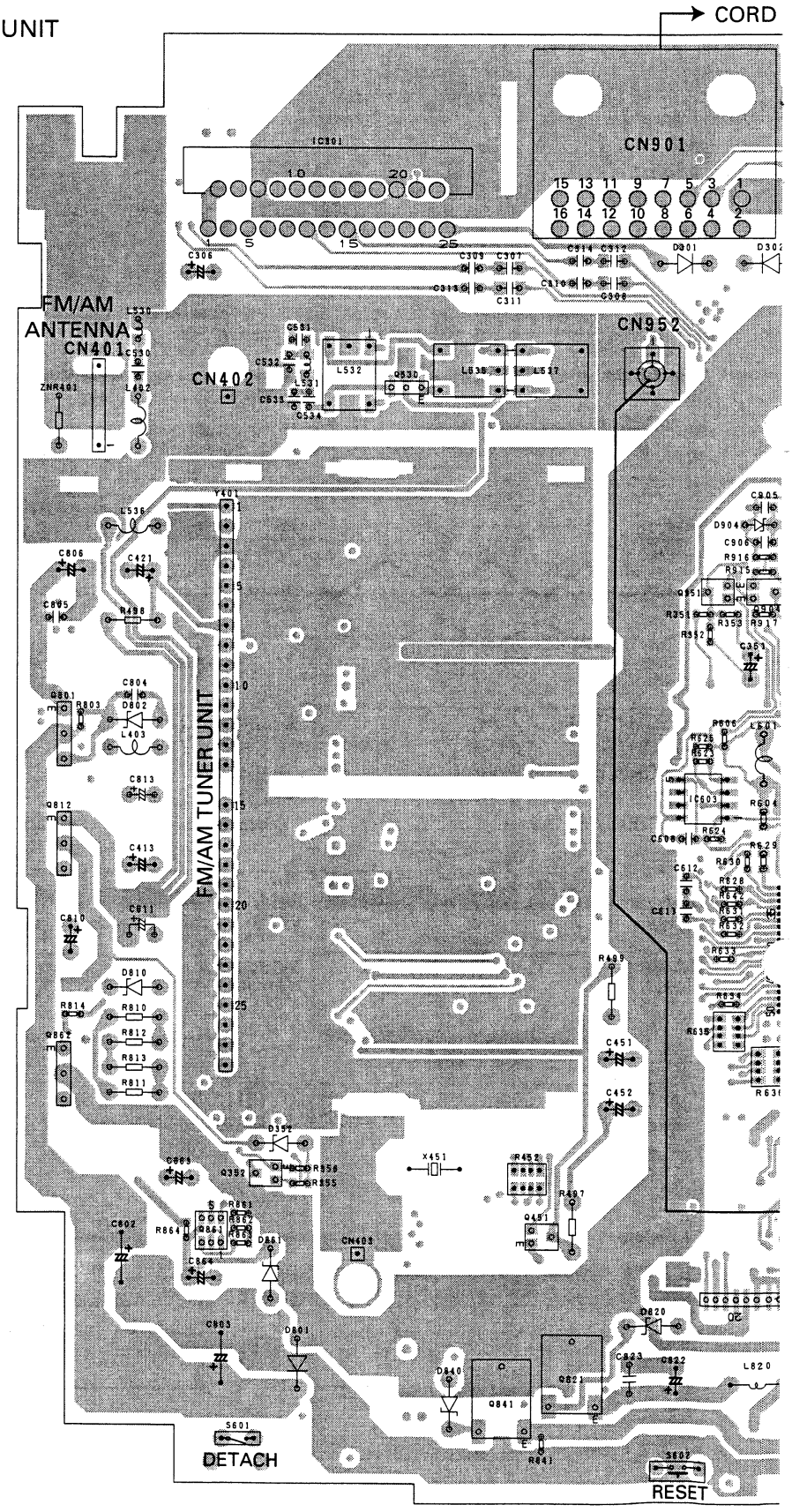
4.1 MAIN UNIT

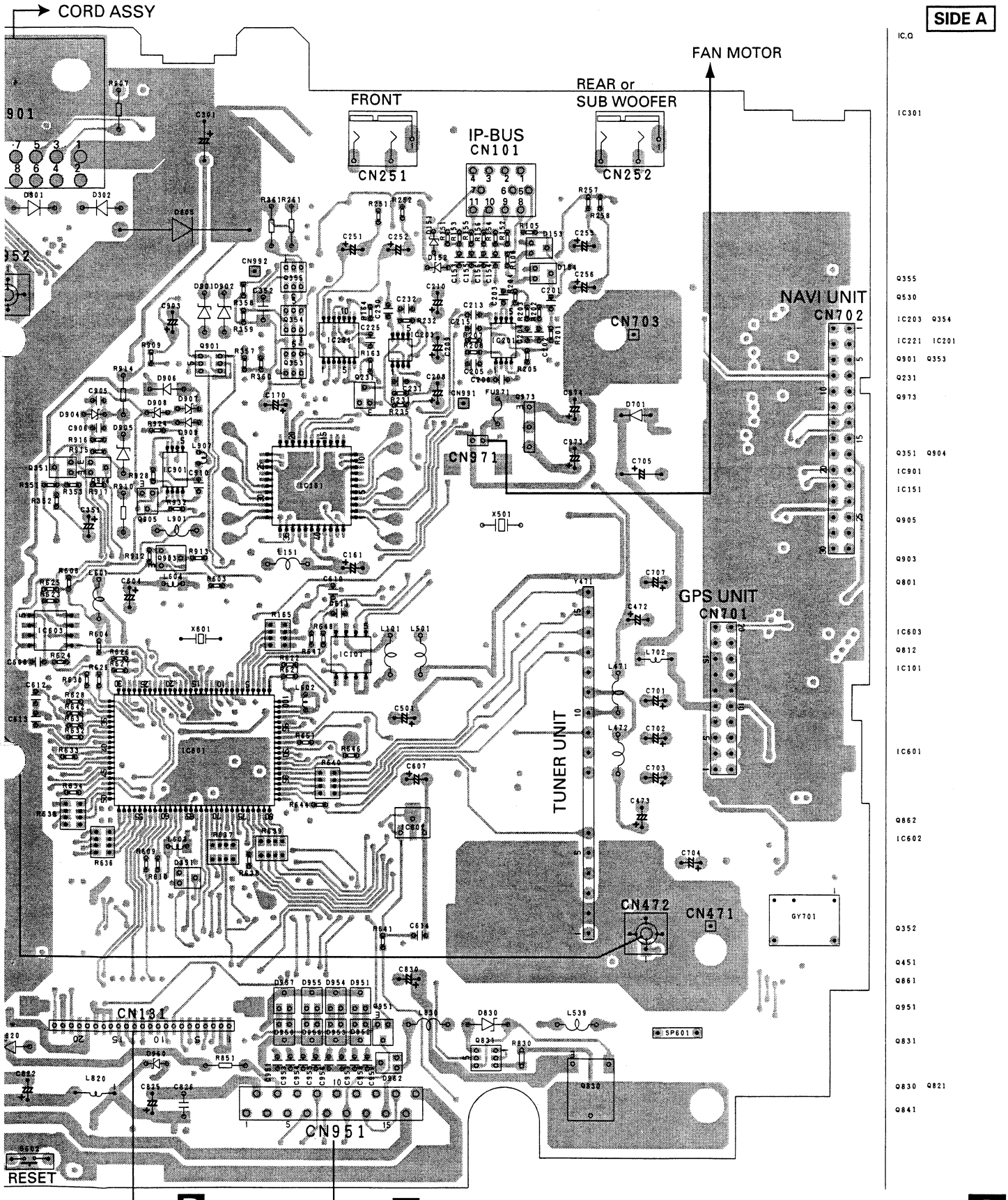
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



A MAIN UNIT




CORD ASSY
SIDE A
FAN MOTOR
REAR or
SUB WOOFER
FRONT
IP-BUS
CN101
CN251
CN252
NAVI UNIT
CN702
CN703
CN971
GPS UNIT
CN701
TUNER UNIT
CN472
CN471
CN951
CN131
RESET
FRONT
D CN701
C CN1802
IC,Q
IC301
Q355
Q530
IC203 Q354
IC221 IC201
Q901 Q353
Q231
Q973
Q351 Q904
IC901
IC151
Q905
Q903
Q801
IC603
Q812
IC101
IC601
Q862
IC602
Q352
Q451
Q861
Q951
Q831
Q830 Q821
Q841

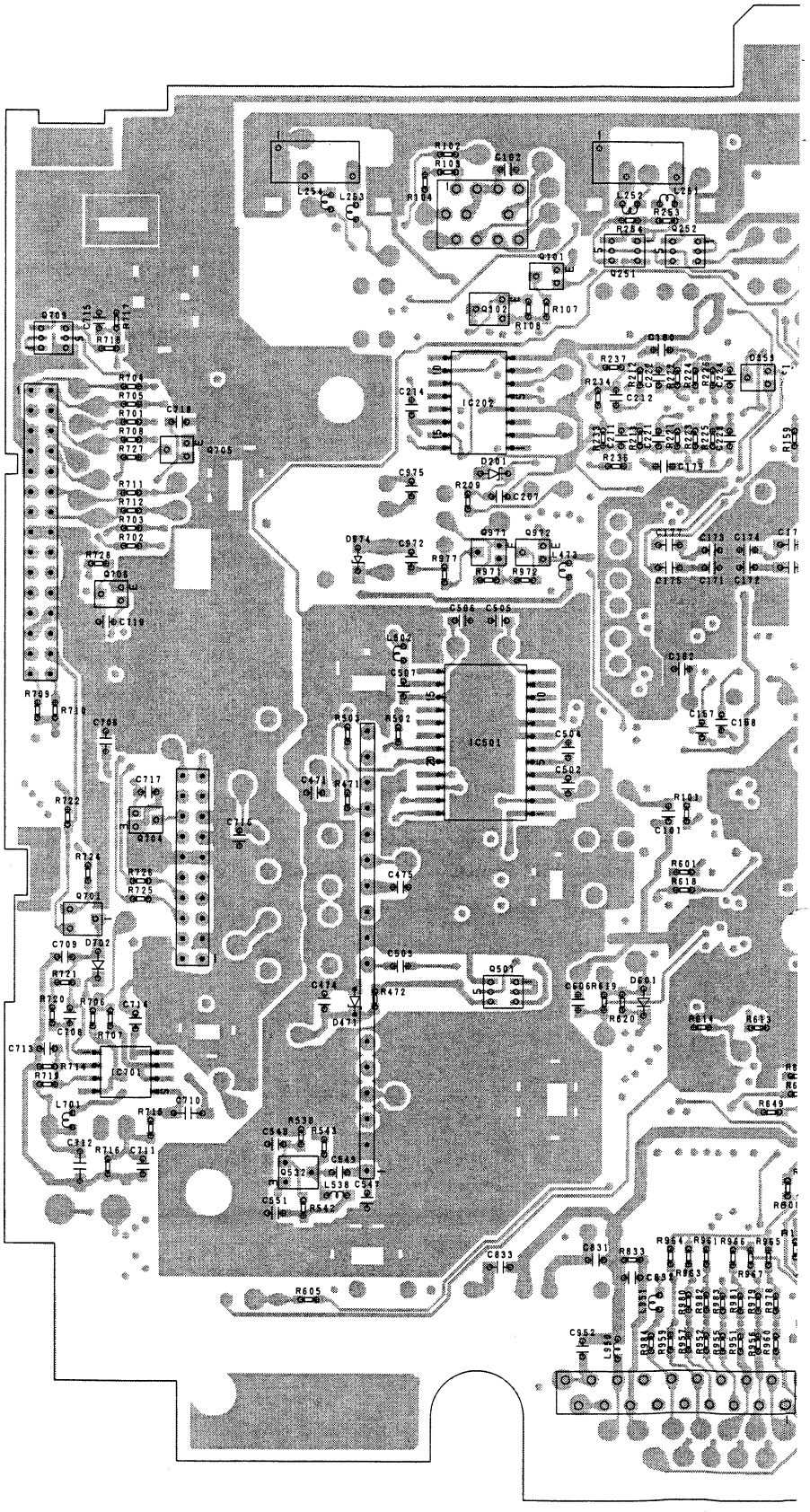
ANH-P9R/EW

A

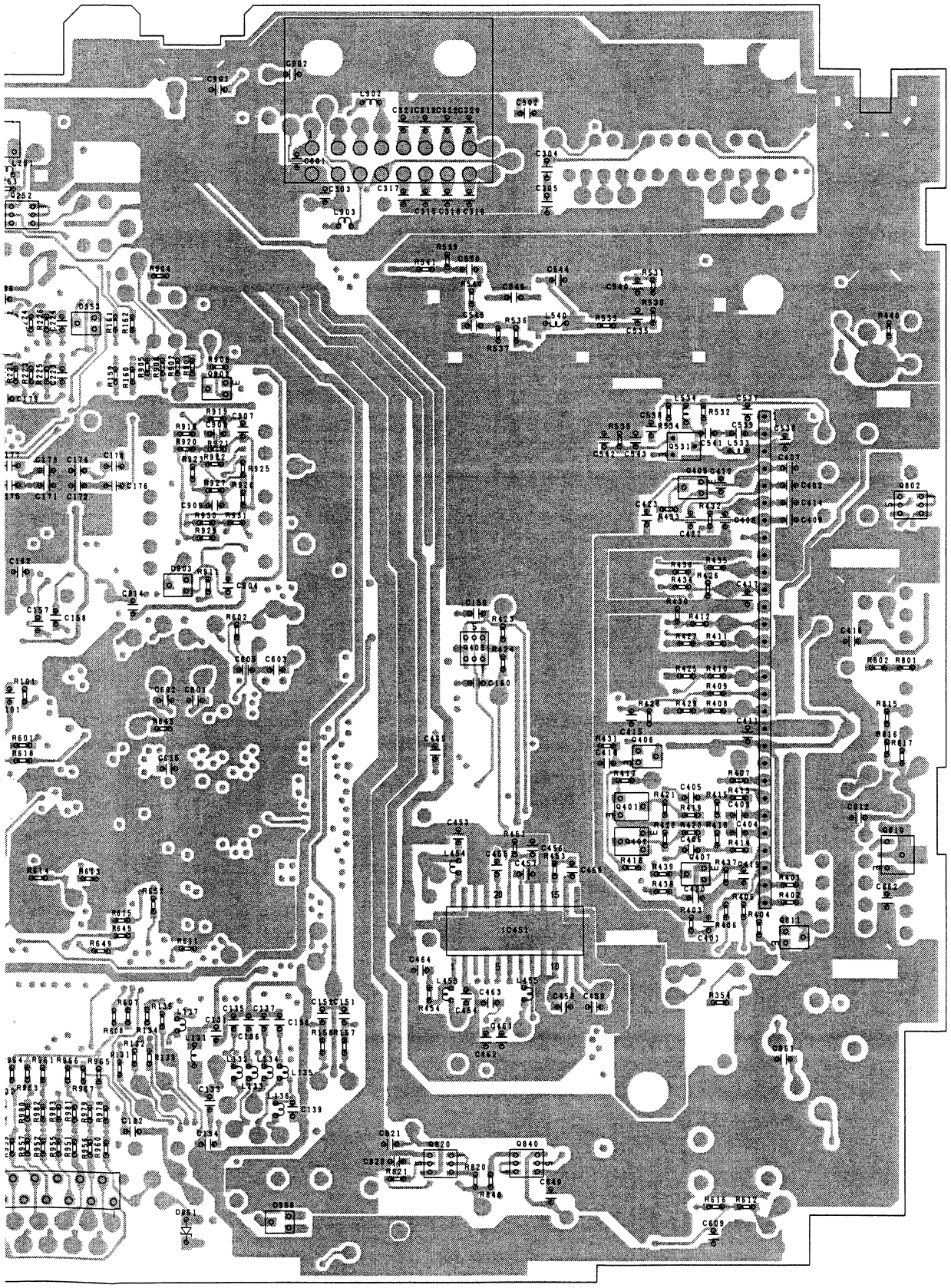
A MAIN UNIT

IC,Q

Q252
Q101
Q251
Q102
Q703
IC202
Q902 Q705
Q531
Q405 Q971 Q972
Q802
Q706
IC501
Q403
Q704
Q406
Q701
Q401
Q810 Q501
Q402
Q407
Q811 IC701
IC451
Q532
Q820 Q840



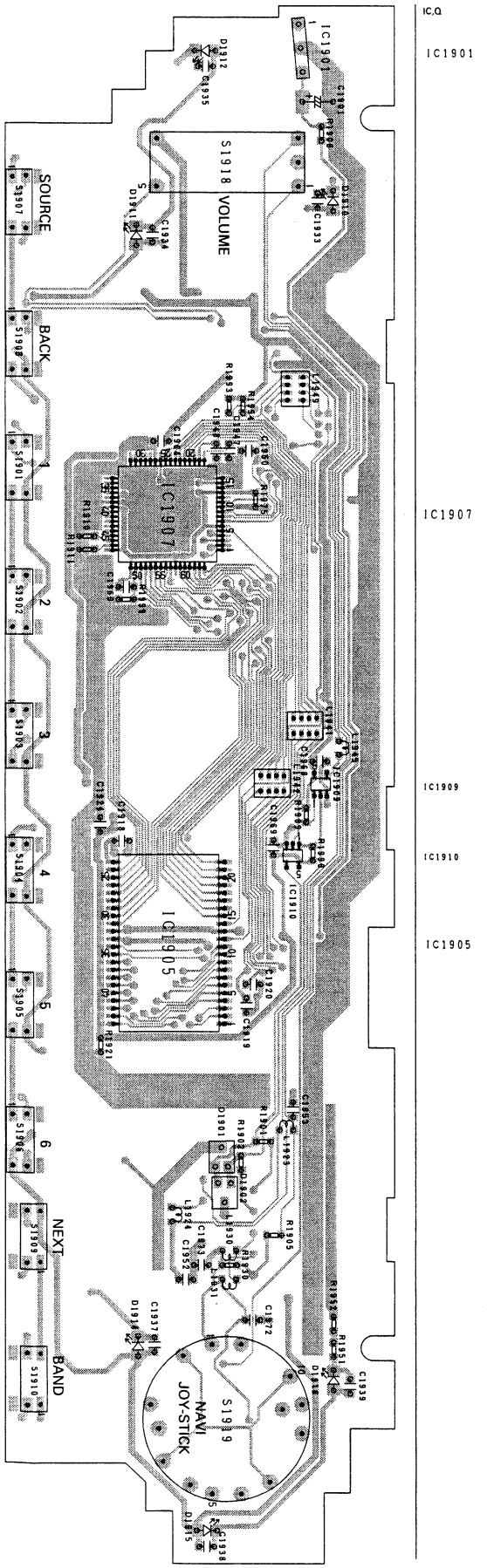
SIDE B



4.2 KEYBOARD UNIT

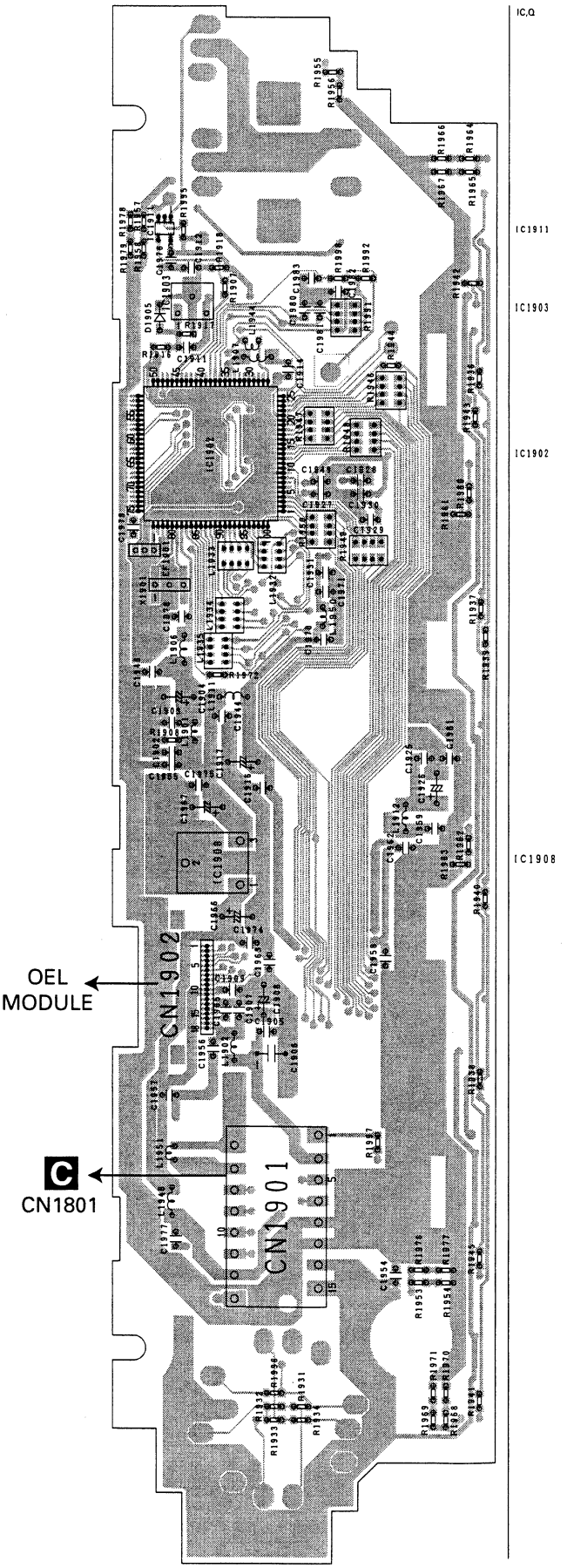
B KEYBOARD UNIT

SIDE A



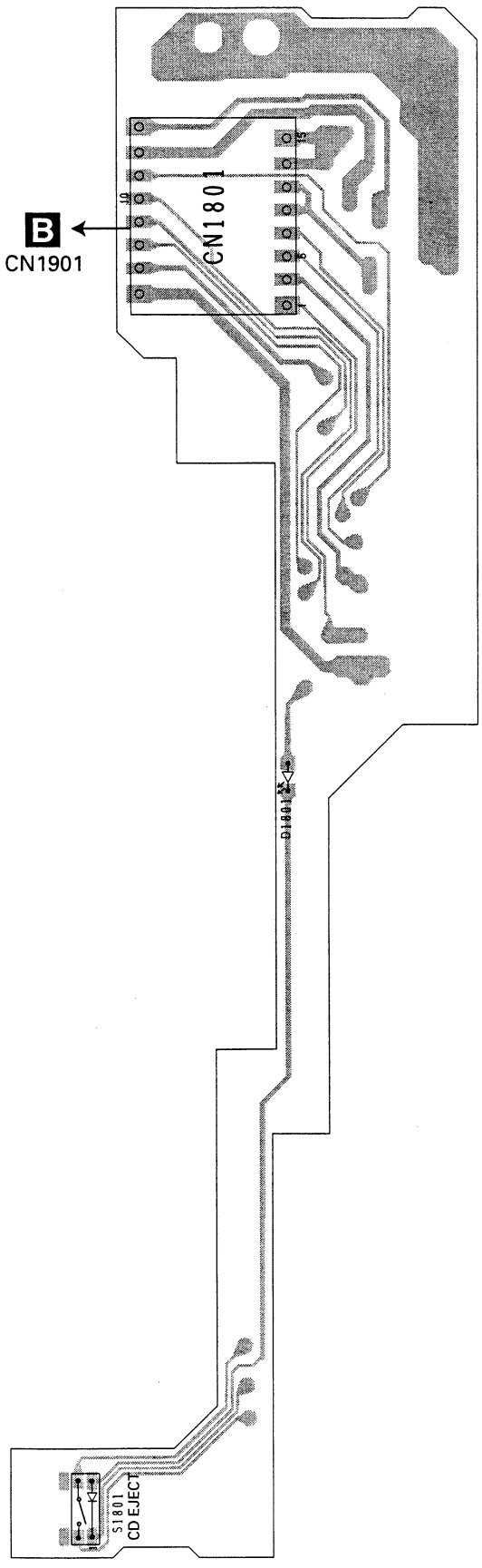
B KEYBOARD UNIT

SIDE B

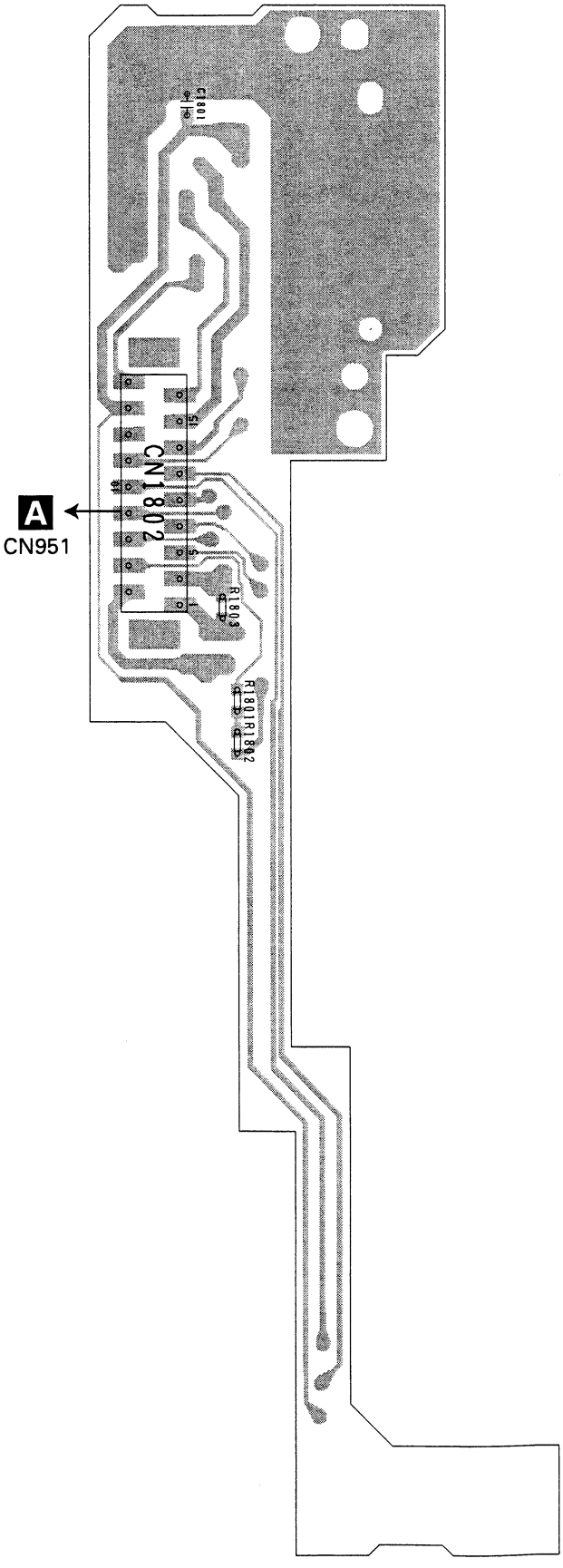


4.3 PANEL UNIT

C PANEL UNIT SIDE A



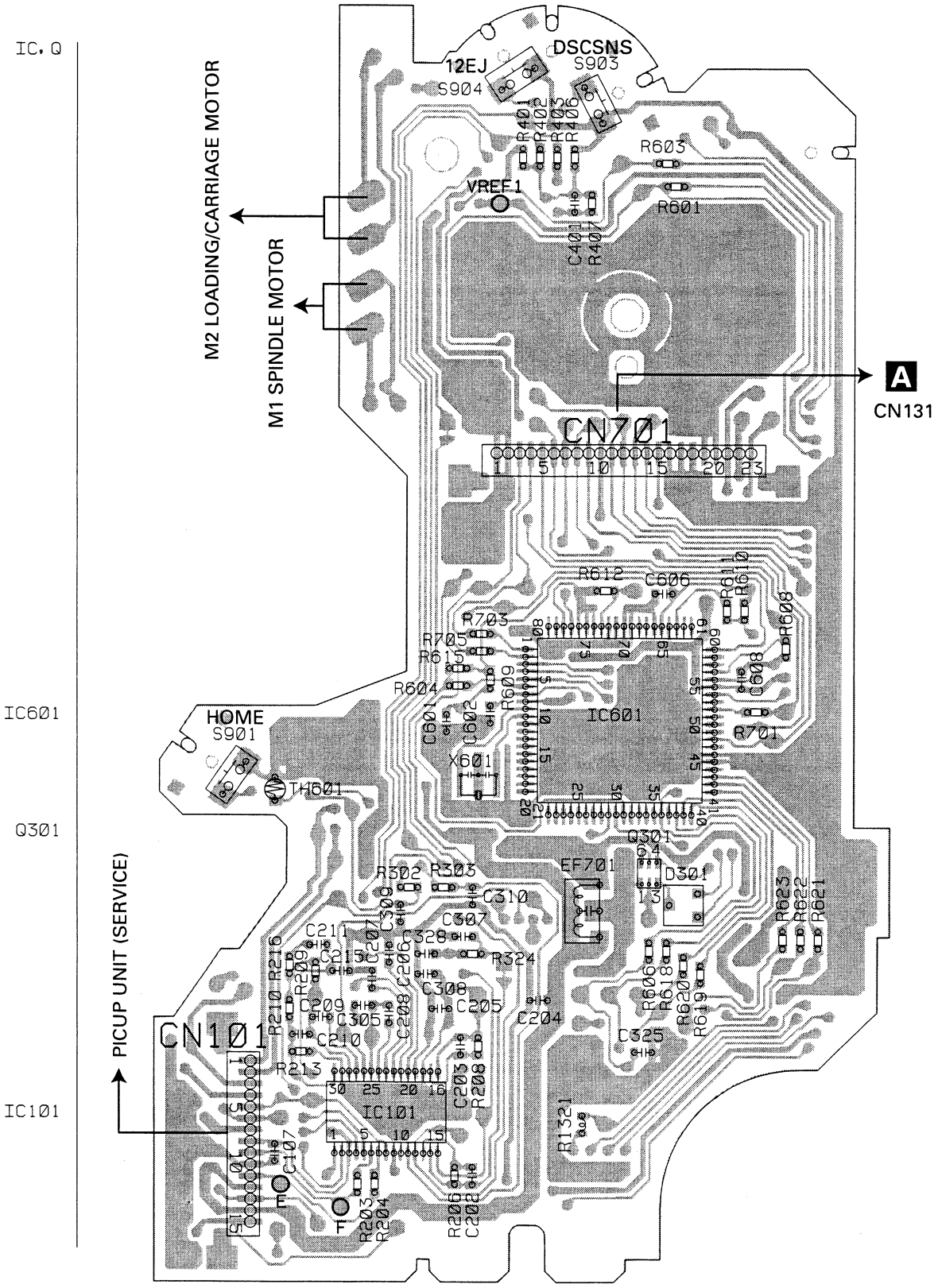
C PANEL UNIT SIDE B



4.4 CD MECHANISM MODULE

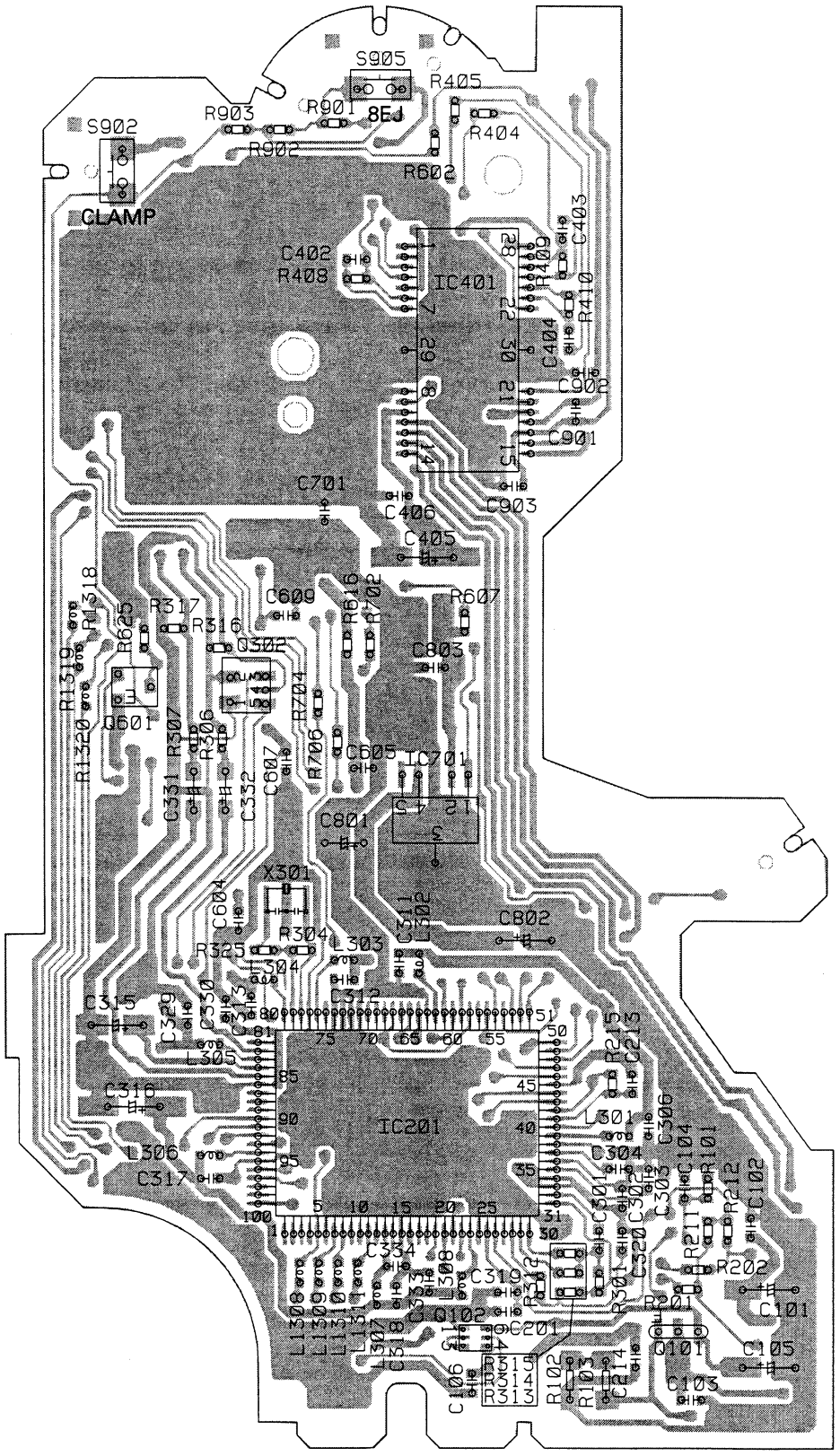
D CD CORE UNIT

SIDE A



D CD CORE UNIT

SIDE B



IC, Q
IC401
Q302
Q601
IC701
IC201
Q102
Q101

5. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor

RS1/◯S◯◯◯J,RS1/◯◯S◯◯◯J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

D

Unit Number:CWX2685
Unit Name:CD Core Unit

MISCELLANEOUS

Circuit Symbol and No.	Part Name	Part No.
IC 101	IC	TA2153FN
IC 201	IC	TC9495F2
IC 401	IC	BA5996FM
IC 601	IC	PE5320A
IC 701	IC	BA05SFP
Q 101	Transistor	2SD1664
Q 102	Transistor	UMD2N
Q 301	Transistor	UMD2N
Q 302	Transistor	FMG12
Q 601	Transistor	UN2111
D 301	Chip Diode	MA151WA
L 301	Inductor	CTF1546
L 302	Inductor	CTF1546
L 303	Inductor	CTF1546
L 304	Inductor	CTF1546
L 305	Inductor	CTF1546
L 306	Inductor	CTF1546
L 307	Inductor	CTF1546
L 308	Inductor	CTF1546
L 1308	Inductor	CTF1306
L 1309	Inductor	CTF1306
L 1310	Inductor	CTF1306
L 1311	Inductor	CTF1306
TH601	Thermistor	CCX1037
X 301	Ceramic Resonator 16.934MHz	CSS1525
X 601	Ceramic Resonator 25MHz	CSS1510
S 901	Spring Switch(HOME)	CSN1051
S 902	Spring Switch(CLAMP)	CSN1052
S 903	Spring Switch(DSCSNS)	CSN1051
S 904	Spring Switch(12EJ)	CSN1052
S 905	Spring Switch(8EJ)	CSN1051
EF701	EMI Filter	CCG1051

RESISTORS

Circuit Symbol and No.	Part No.
R 101	RS1/16S222J
R 102	RS1/8S120J
R 103	RS1/8S100J
R 201	RS1/16S513J
R 202	RS1/16S513J
R 203	RS1/16S9102D
R 204	RS1/16S9102D
R 206	RS1/16S8202D
R 208	RS1/16S124J
R 209	RS1/16S183J
R 210	RS1/16S153J
R 211	RS1/16S103J
R 212	RS1/16S103J
R 213	RS1/16S124J
R 215	RS1/16S0R0J
R 216	RS1/16S471J
R 301	RS1/16S153J
R 302	RS1/16S332J
R 303	RS1/16S332J
R 304	RS1/16S514J
R 306	RS1/16S102J
R 307	RS1/16S102J
R 312	RS1/16S103J
R 313	RS1/16S473J
R 314	RS1/16S224J
R 315	RS1/16S334J
R 316	RS1/16S223J
R 317	RS1/16S223J
R 324	RS1/16S332J
R 325	RS1/16S331J
R 401	RS1/16S684J
R 402	RS1/16S103J
R 403	RS1/16S103J
R 404	RS1/16S183J
R 405	RS1/16S123J
R 407	RS1/16S622J
R 408	RS1/16S622J
R 409	RS1/16S113J
R 410	RS1/16S752J
R 601	RS1/16S102J
R 602	RS1/16S102J
R 603	RS1/16S102J
R 604	RS1/16S102J
R 606	RS1/16S102J
R 607	RS1/16S473J
R 608	RS1/16S223J
R 609	RN1/16SE1302D
R 610	RS1/16S104J
R 611	RS1/16S222J
R 612	RS1/16S103J
R 615	RS1/16S104J
R 616	RS1/16S0R0J
R 618	RS1/16S102J
R 619	RS1/16S102J
R 620	RS1/16S102J
R 621	RS1/16S102J
R 622	RS1/16S102J
R 623	RS1/16S102J
R 625	RS1/16S104J
R 701	RS1/16S681J

Circuit Symbol and No.	Part Name	Part No.
R 702		RS1/16S681J
R 703		RS1/16S681J
R 704		RS1/16S681J
R 705		RS1/16S681J
R 706		RS1/16S102J
R 901		RS1/16S104J
R 902		RS1/16S473J
R 903		RS1/16S273J
R 1318		RS1/16S221J
R 1319		RS1/16S221J
R 1320		RS1/16S221J
R 1321		RS1/16S221J

CAPACITORS

C 101		CEV470M6R3
C 102		CKSRYB102K50
C 103		CKSRYB104K16
C 104		CKSRYB224K16
C 105		CEV470M6R3
C 106		CKSRYB104K16
C 107		CKSRYB105K6R3
C 201		CKSRYB104K16
C 202		CCSRCH560J50
C 204		CKSRYB224K16
C 205		CKSRYB224K16
C 206		CKSRYB273K25
C 207		CKSRYB273K25
C 208		CKSRYB104K16
C 209		CKSRYB104K16
C 210		CCSRCK2R0C50
C 211		CCSRCH220J50
C 215		CCSRCH220J50
C 301		CKSRYB153K25
C 302		CKSRYB104K16
C 303		CKSRYB103K50
C 304		CKSRYB822K50
C 305		CKSRYB104K16
C 306		CKSRYB104K16
C 307		CKSRYB333K16
C 308		CKSRYB104K16
C 309		CKSRYB473K16
C 310		CKSRYB473K16
C 311		CKSRYB104K16
C 312		CKSRYB104K16
C 313		CKSRYB104K16
C 315		CEV220M6R3
C 317		CKSRYB104K16
C 318		CKSRYB104K16
C 319		CKSRYB104K16
C 320		CCSRCH330J50
C 325		CKSRYB471K50
C 328		CKSRYB472K50
C 329		CKSRYB104K16
C 331		CSZS4R7M10
C 332		CSZS4R7M10
C 333		CKSRYB104K16
C 334		CKSRYB104K16
C 401		CKSRYB221K50
C 402		CKSRYB221K50
C 403		CKSRYB153K25
C 404		CKSRYB103K50
C 405		CEV101M10
C 406		CKSRYB104K16
C 601		CKSRYB103K50
C 602		CKSRYB472K50
C 604		CKSRYB471K50
C 605		CKSRYB104K16
C 606		CKSRYB104K16
C 607		CKSRYB104K16
C 608		CKSRYB104K16
C 701		CKSRYB104K16
C 801	10µF/10V	CCH1349
C 802		CEV101M10
C 803		CKSRYB224K16

A

Unit Number:CWM8365
Unit Name:Main Unit

MISCELLANEOUS

IC 101	IC	HA12187FP
IC 151	IC	PML008A
IC 201	IC	NJM4558V
IC 202	IC	M51132FP
IC 203	IC	TC7W66FU
IC 221	IC	NJM2058V
IC 301	IC	PAL007A
IC 451	IC	PM4009A
IC 501	IC	LC72720NMHS
IC 601	IC	PD5783A
IC 602	IC	S-80735ANDZI
IC 701	IC	NJM2904M
IC 901	IC	NJM2904V
Q 101	Transistor	DTC124EU
Q 102	Transistor	2SA1162
Q 231	Transistor	DTC114EU
Q 251	Transistor	IMH3A
Q 252	Transistor	IMD2A
Q 351	Transistor	DTC124EU
Q 352	Transistor	2SC4081
Q 353	Transistor	IMH3A
Q 354	Transistor	IMH3A
Q 355	Transistor	IMD2A
Q 401	Transistor	2SD1757K
Q 402	Transistor	2SD1757K
Q 403	Transistor	IMH3A
Q 405	Transistor	2SC4081
Q 406	Transistor	2SC4081
Q 407	Transistor	2SC4081
Q 451	Transistor	DTA124EU
Q 501	Transistor	IMD2A
Q 530	Transistor	2SC3357
Q 531	Transistor	2SC3127
Q 532	Transistor	2SC3545
Q 701	FET	CPH3313
Q 703	Transistor	IMD2A
Q 704	Transistor	DTC144EU
Q 705	Transistor	DTC114EU
Q 706	Transistor	DTC144EU
Q 801	Transistor	2SD2396
Q 802	Transistor	IMD2A
Q 810	Transistor	2SB1260
Q 811	Transistor	DTC123JU
Q 812	Transistor	2SD2396
Q 820	Transistor	IMD2A

Circuit Symbol and No.	Part Name	Part No.
Q 821	Transistor	2SD1760F5
Q 830	Transistor	2SD1760F5
Q 831	Transistor	IMD2A
Q 840	Transistor	IMD2A
Q 841	Transistor	2SD1760F5
Q 861	Transistor	IMD2A
Q 862	Transistor	2SD2396
Q 901	Transistor	IMX1
Q 902	Transistor	2SC4081
Q 903	Transistor	2SA1162
Q 904	Transistor	2SC4081
Q 905	Transistor	DTC114EU
Q 951	Transistor	DTC143EU
Q 971	Transistor	2SA1587
Q 972	Transistor	DTC143EU
Q 973	Transistor	2SD1859
D 151	Diode	MA8051(L)
D 152	Diode	MA8051(L)
D 153	Diode Network	DA204U
D 154	Diode Network	DA204U
D 201	Diode	UDZS3R9(B)
D 301	Diode	MPG06G-6415G3
D 302	Diode	MPG06G-6415G3
D 351	Diode	DAN202U
D 352	Diode	HZS9L(A2)
D 353	Diode	DAN202U
D 471	Diode	HZU3R3(B1)
D 601	Diode	1SS355
D 701	Diode	RB060L-40
D 702	Diode	1SS355
D 801	Diode	MPG06G-6415G3
D 802	Diode	HZS6L(A1)
D 805	Diode	5KP22A
D 810	Diode	HZS9L(B2)
D 820	Diode	HZS9L(C3)
D 830	Diode	HZS6L(B1)
D 840	Diode	HZS9L(C2)
D 861	Diode	HZS9L(A3)
D 901	Diode	HZS7L(C3)
D 902	Diode	HZS7L(A1)
D 903	Diode	DAN202U
D 904	Diode	MA8180(M)
D 905	Diode	HZS6L(B2)
D 906	Diode	S1G-6904G2P
D 907	Diode	MA8180(M)
D 908	Diode	MA8180(M)
D 909	Diode	1SS355
D 952	Diode	DAP202U
D 953	Diode	DAP202U
D 956	Diode	DAP202U
D 958	Diode	DAP202U
D 959	Diode	DAP202U
D 960	Diode	MA8100(M)
D 961	Diode	MA8100(M)
D 962	Diode	DAP202U
D 974	Diode	UDZS13(B)
ZNR401	Surge Protector	DSPS-201M-S00B
L 101	Inductor	LAU3R3K
L 131	Inductor	LCTA2R2J2520
L 132	Inductor	CTF1389
L 133	Inductor	CTF1389
L 134	Inductor	CTF1389
L 135	Inductor	CTF1389

Circuit Symbol and No.	Part Name	Part No.
L 136	Inductor	CTF1389
L 137	Inductor	CTF1389
L 151	Inductor	LAU100K
L 251	Inductor	CTF1306
L 252	Inductor	CTF1306
L 253	Inductor	CTF1306
L 254	Inductor	CTF1306
L 402	Ferri-Inductor	LAU4R7K
L 403	Ferri-Inductor	LAU2R2K
L 453	Inductor	CTF1557
L 454	Inductor	CTF1470
L 455	Inductor	CTF1557
L 471	Inductor	LAU1R0K
L 472	Ferri-Inductor	LAU2R2K
L 473	Inductor	CTF1557
L 501	Ferri-Inductor	LAU2R2K
L 502	Inductor	CTF1467
L 530	Inductor	LCTBR12K2125
L 531	Coil	LCTBR10K2125
L 532	Coil	CTC1143
L 533	Coil	LCTBR10K2125
L 534	Inductor	LCTBR18K2125
L 535	Coil	CTC1142
L 536	Ferri-Inductor	LAU101K
L 537	Coil	CTC1139
L 538	Coil	LCTBR22K2125
L 539	Inductor	LAU1R0K
L 540	Inductor	LCTA101J2520
L 601	Ferri-Inductor	LAU2R2K
L 603	Inductor	LCTA100J2520
L 604	Inductor	LCTA100J2520
L 701	Inductor	CTF1389
L 702	Inductor	CTF1584
L 820	Inductor	CTF1489
L 830	Inductor	LAU100K
L 901	Ferri-Inductor	LAU2R2K
L 902	Inductor	CTF1295
L 903	Inductor	CTF1556
L 907	Inductor	CTF1556
L 950	Inductor	CTF1399
L 951	Inductor	CTF1306
X 451	Crystal Resonator 3.648MHz	CSS1447
X 501	Crystal Resonator 4.332MHz	CSS1473
X 601	Radiator 10.00MHz	CSS1475
S 601	Switch(DETACH)	CSN1039
S 602	Switch(RESET)	CSG1046
FU971	Fuse 250mA	CEK1213
GY701	Sensor	CSX1042
	FM/AM Tuner Unit	CWE1607
	GPS Unit	CWX2693
	NAVI Unit	CWX2694
Y 471	Tuner Unit	CWE1674
SP601	Buzzer	CPV1062

RESISTORS

R 101		RS1/16S103J
R 102		RS1/16S101J
R 103		RS1/16S470J
R 104		RS1/16S150J
R 105		RS1/16S101J
R 106		RS1/16S222J
R 107		RS1/16S562J
R 108		RS1/16S332J

Circuit Symbol and No.	Part Name	Part No.
R 131		RS1/16S101J
R 132		RS1/16S101J
R 133		RS1/16S101J
R 134		RS1/16S101J
R 135		RS1/16S101J
R 151		RS1/16S181J
R 152		RS1/16S181J
R 153		RS1/16S223J
R 154		RS1/16S223J
R 155		RS1/16S102J
R 156		RS1/16S102J
R 157		RS1/16S0R0J
R 158		RS1/16S0R0J
R 159		RS1/16S681J
R 160		RS1/16S681J
R 161		RS1/16S821J
R 162		RS1/16S821J
R 163		RS1/16S473J
R 164		RS1/16S473J
R 165		RAB4C102J
R 201		RS1/16S474J
R 202		RS1/16S473J
R 203		RS1/16S473J
R 204		RS1/16S473J
R 205		RS1/16S473J
R 207		RS1/16S682J
R 208		RS1/16S183J
R 209		RS1/16S102J
R 211		RS1/16S473J
R 212		RS1/16S473J
R 221		RS1/16S473J
R 222		RS1/16S473J
R 223		RS1/16S472J
R 224		RS1/16S472J
R 225		RS1/16S472J
R 226		RS1/16S472J
R 231		RS1/16S104J
R 232		RS1/16S104J
R 233		RS1/16S104J
R 234		RS1/16S104J
R 235		RS1/16S104J
R 251		RS1/16S821J
R 252		RS1/16S821J
R 253		RS1/16S223J
R 254		RS1/16S223J
R 257		RS1/16S223J
R 258		RS1/16S223J
R 261		RD1/4PU102J
R 351		RS1/16S103J
R 352		RS1/16S103J
R 353		RS1/16S331J
R 354		RS1/16S473J
R 355		RS1/16S223J
R 356		RS1/16S473J
R 357		RS1/16S473J
R 358		RS1/16S473J
R 359		RS1/16S473J
R 360		RS1/16S473J
R 361		RD1/4PU102J
R 401		RS1/16S473J
R 402		RS1/16S473J
R 403		RS1/16S473J
R 404		RS1/16S681J

Circuit Symbol and No.	Part Name	Part No.
R 405		RS1/16S681J
R 406		RS1/16S681J
R 407		RS1/16S681J
R 408		RS1/16S681J
R 409		RS1/16S103J
R 410		RS1/16S681J
R 411		RS1/16S681J
R 412		RS1/16S681J
R 413		RS1/16S162J
R 414		RS1/16S162J
R 415		RS1/16S272J
R 416		RS1/16S272J
R 417		RS1/16S224J
R 418		RS1/16S224J
R 419		RS1/16S222J
R 420		RS1/16S222J
R 421		RS1/16S223J
R 422		RS1/16S223J
R 423		RS1/16S104J
R 424		RS1/16S104J
R 425		RS1/16S472J
R 426		RS1/16S473J
R 427		RS1/16S473J
R 428		RS1/16S393J
R 429		RS1/16S473J
R 430		RS1/16S473J
R 431		RS1/16S224J
R 432		RS1/16S222J
R 433		RS1/16S222J
R 434		RS1/16S681J
R 435		RS1/16S681J
R 436		RS1/16S473J
R 437		RS1/16S153J
R 438		RS1/16S474J
R 439		RS1/16S681J
R 440		RS1/16S105J
R 451		RS1/16S225J
R 452		RAB4C102J
R 453		RS1/16S102J
R 454		RS1/16S470J
R 471		RS1/16S472J
R 472		RS1/16S391J
R 497		RD1/4PU0R0J
R 498		RD1/4PU0R0J
R 499		RD1/4PU0R0J
R 502		RS1/16S103J
R 503		RS1/16S472J
R 530		RS1/16S821J
R 531		RS1/16S330J
R 532		RS1/16S151J
R 533		RS1/16S332J
R 534		RS1/16S681J
R 535		RS1/16S152J
R 536		RS1/16S680J
R 537		RS1/16S151J
R 538		RS1/16S152J
R 539		RS1/16S151J
R 540		RS1/16S101J
R 541		RS1/16S680J
R 542		RS1/16S681J
R 543		RS1/16S151J
R 601		RS1/16S473J
R 602		RS1/16S473J
R 603		RS1/16S473J

Circuit Symbol and No.	Part Name	Part No.
R 604		RS1/16S472J
R 605		RS1/16S102J
R 606		RS1/16S473J
R 607		RS1/16S473J
R 608		RS1/16S473J
R 609		RS1/16S102J
R 610		RS1/16S102J
R 611		RS1/16S473J
R 612		RS1/16S102J
R 613		RS1/16S104J
R 614		RS1/16S473J
R 615		RS1/16S473J
R 616		RS1/16S104J
R 618		RS1/16S473J
R 619		RS1/16S102J
R 620		RS1/16S822J
R 621		RS1/16S102J
R 622		RS1/16S102J
R 626		RS1/16S102J
R 627		RS1/16S102J
R 628		RS1/16S0R0J
R 629		RS1/16S102J
R 630		RS1/16S0R0J
R 631		RS1/16S102J
R 632		RS1/16S102J
R 633		RS1/16S0R0J
R 634		RS1/16S0R0J
R 635		RAB4C102J
R 636		RAB4C102J
R 637		RAB4C102J
R 638		RS1/16S102J
R 639		RAB4C102J
R 640		RAB4C102J
R 641		RS1/16S102J
R 642		RS1/16S0R0J
R 643		RS1/16S512J
R 644		RS1/16S102J
R 646		RS1/16S473J
R 647		RS1/16S102J
R 648		RS1/16S102J
R 649		RS1/16S0R0J
R 651		RS1/16S102J
R 652		RS1/16S102J
R 701		RS1/16S0R0J
R 702		RS1/16S102J
R 703		RS1/16S102J
R 704		RS1/16S0R0J
R 705		RS1/16S0R0J
R 706		RN1/16SE1102D
R 707		RN1/16SE5601D
R 708		RS1/16S0R0J
R 709		RS1/16S103J
R 710		RS1/16S103J
R 711		RS1/16S102J
R 712		RS1/16S102J
R 714		RN1/16SE1102D
R 715		RS1/16S151J
R 716		RS1/16S104J
R 717		RN1/16SE3301D
R 718		RN1/16SE2702D
R 719		RN1/16SE5601D
R 720		RS1/16S471J
R 721		RS1/16S1R5J

Circuit Symbol and No.	Part Name	Part No.
R 722		RS1/16S332J
R 724		RS1/16S102J
R 725		RS1/16S0R0J
R 726		RS1/16S0R0J
R 727		RS1/16S0R0J
R 728		RS1/16S0R0J
R 801		RS1/16S821J
R 802		RS1/16S821J
R 803		RS1/16S223J
R 810		RD1/4PU331J
R 811		RD1/4PU331J
R 812		RD1/4PU331J
R 813		RD1/4PU331J
R 814		RS1/16S103J
R 815		RS1/16S271J
R 816		RS1/16S271J
R 817		RS1/16S221J
R 820		RS1/16S681J
R 821		RS1/16S102J
R 830		RS1/10S242J
R 840		RS1/16S561J
R 851		RD1/4PU391J
R 861		RS1/16S680J
R 862		RS1/16S680J
R 863		RS1/16S680J
R 864		RS1/16S221J
R 901		RS1/16S473J
R 902		RS1/16S104J
R 904		RS1/16S472J
R 905		RS1/16S473J
R 906		RS1/16S103J
R 907		RD1/4PU102J
R 908		RS1/16S473J
R 909		RS1/16S103J
R 910		RD1/4PU153J
R 911		RS1/16S472J
R 912		RS1/16S472J
R 913		RS1/16S102J
R 914		RD1/4PU102J
R 915		RS1/16S103J
R 916		RS1/16S103J
R 917		RS1/16S473J
R 918		RS1/16S333J
R 919		RS1/16S203J
R 920		RS1/16S822J
R 921		RS1/16S202J
R 922		RS1/16S564J
R 923		RS1/16S513J
R 924		RS1/16S513J
R 925		RS1/16S102J
R 926		RS1/16S102J
R 927		RS1/16S104J
R 928		RS1/16S513J
R 929		RS1/16S473J
R 930		RS1/16S563J
R 931		RS1/16S104J
R 932		RS1/16S473J
R 951		RS1/16S222J
R 952		RS1/16S222J
R 955		RS1/16S222J
R 956		RS1/16S222J
R 957		RS1/16S222J
R 959		RS1/16S222J

Circuit Symbol and No.	Part Name	Part No.
R 960		RS1/16S122J
R 961		RS1/16S473J
R 963		RS1/16S473J
R 964		RS1/16S473J
R 965		RS1/16S473J
R 966		RS1/16S104J
R 967		RS1/16S104J
R 971		RS1/16S103J
R 972		RS1/16S512J
R 977		RS1/16S102J
R 978		RS1/16S102J
R 979		RS1/16S222J
R 980		RS1/16S222J
R 981		RS1/16S222J
R 982		RS1/16S222J
R 983		RS1/16S102J
R 984		RS1/16S102J

CAPACITORS

C 101		CKSRYB104K25
C 102		CKSRYB104K25
C 131		CCSRCH102J50
C 132		CKSRYB103K50
C 133		CKSRYB103K50
C 134		CKSRYB103K50
C 135		CCSRCH470J50
C 136		CCSRCH470J50
C 137		CCSRCH470J50
C 138		CCSRCH470J50
C 139		CKSRYB473K50
C 151		CKSRYB152K50
C 152		CKSRYB152K50
C 153		CKSRYB105K10
C 154		CKSRYB105K10
C 155		CKSRYB105K10
C 156		CKSRYB105K10
C 157		CKSRYB105K10
C 158		CKSRYB105K10
C 159		CKSRYB105K10
C 160		CKSRYB105K10
C 161		CEJQ470M10
C 162		CKSRYB104K25
C 163		CEJQNP4R7M16
C 164		CEJQNP4R7M16
C 165		CEJQNP4R7M16
C 166		CEJQNP4R7M16
C 167		CEJQNP4R7M16
C 168		CEJQNP4R7M16
C 170		CEJQ100M16
C 175		CKSQYB225K10
C 176		CKSQYB225K10
C 177		CKSQYB225K10
C 178		CKSQYB225K10
C 179		CKSRYB105K10
C 180		CKSRYB105K10
C 201		CKSRYB105K10
C 202		CCSRCH101J50
C 203		CKSRYB331K50
C 204		CCSRCH820J50
C 205		CCSRCH820J50
C 206		CKSRYB105K10
C 207		CKSRYB105K10
C 208		CEJQ100M16
C 209		CEJQ220M10

Circuit Symbol and No.	Part Name	Part No.
C 210		CEJQ4R7M35
C 211		CKSRYB105K10
C 212		CKSRYB105K10
C 213		CKSRYB103K50
C 214		CKSRYB103K50
C 215		CKSRYB474K10
C 221		CCSRCH270J50
C 222		CCSRCH270J50
C 223		CCSRCH101J50
C 224		CCSRCH101J50
C 225		CKSRYB103K50
C 230		CKSRYB104K25
C 231		CKSRYB105K10
C 232		CKSRYB105K10
C 251		CEJQ100M16
C 252		CEJQ100M16
C 255		CEJQ100M16
C 256		CEJQ100M16
C 301	4700µF/16V	CCH1367
C 302		CKSRYB104K25
C 303		CKSRYB104K16
C 304		CKSQYB225K10
C 305		CKSQYB225K10
C 306		CEJQ100M16
C 307		CKSQYB474K25
C 308		CKSQYB474K25
C 309		CKSRYB474K10
C 310		CKSRYB474K10
C 311		CKSQYB474K25
C 312		CKSQYB474K25
C 313		CKSRYB474K10
C 314		CKSRYB474K10
C 315		CKSRYB122K50
C 316		CKSRYB122K50
C 317		CKSRYB122K50
C 318		CKSRYB122K50
C 319		CKSRYB122K50
C 320		CKSRYB122K50
C 321		CKSRYB122K50
C 322		CKSRYB122K50
C 351		CEJQ330M10
C 352		CKSYB105K25
C 401		CKSRYB182K50
C 403		CKSRYB123K50
C 404		CKSRYB123K50
C 405		CKSRYB105K10
C 406		CKSRYB105K10
C 411		CKSRYB473K50
C 412		CKSRYB103K50
C 413		CEJQ101M16
C 415		CKSRYB472K50
C 418		CKSRYB223K50
C 420		CKSRYB472K50
C 421		CEJQ220M16
C 422		CKSRYB103K50
C 423		CKSRYB103K50
C 451		CEJQ220M10
C 452		CEJQ220M10
C 453		CKSRYB104K25
C 454		CKSRYB104K25
C 455		CKSRYB471K50
C 456		CKSRYB471K50
C 457		CKSRYB104K25

Circuit Symbol and No.	Part Name	Part No.
C 458		CCSRCH270J50
C 459		CCSRCH270J50
C 461		CKSRYB103K50
C 462		CKSRYB103K50
C 463		CKSRYB103K50
C 464		CKSRYB102K50
C 465		CKSRYB102K50
C 466		CKSRYB103K50
C 471		CKSRYB103K50
C 472		CEJQ220M10
C 473		CEJQ220M10
C 474		CKSRYB473K50
C 501		CEJQ100M16
C 502		CKSRYB104K25
C 503		CKSRYB331K50
C 504		CKSRYB561K50
C 505		CCSRCH220D50
C 506		CCSRCH220D50
C 507		CKSRYB104K25
C 530		CCSRCH270J50
C 531		CCSRCH220J50
C 532		CCSRCH270J50
C 533		CCSRCH330J50
C 534		CCSRCH470J50
C 535		CKSRYB103K50
C 538		CKSRYB103K50
C 539		CCSRCH270J50
C 540		CKSRYB103K50
C 541		CCSRCH150J50
C 543		CKSRYB222K50
C 544		CKSRYB103K50
C 545		CKSRYB222K50
C 546		CKSRYB222K50
C 548		CKSRYB222K50
C 549		CCSRCH220J50
C 550		CKSRYB222K50
C 551		CKSRYB103K50
C 601		CCSRCH180J50
C 602		CCSRCH180J50
C 604		CEJQ4R7M35
C 605		CKSRYB102K50
C 606		CKSRYB102K50
C 607		CEJQ2R2M50
C 609		CKSRYB103K50
C 610		CKSRYB105K10
C 611		CKSRYB105K10
C 612		CKSRYB102K50
C 613		CKSRYB102K50
C 701		CEJQ100M16
C 702		CEJQ100M16
C 703		CEJQ100M16
C 704		CEJQ100M16
C 705	470µF/16V	CCH1331
C 706		CKSQYB225K10
C 707		CEJQ100M16
C 708		CKSRYB223K50
C 709		CKSRYB102K50
C 710		CKSYB106K6R3
C 711		CKSRYB103K50
C 712		CKSYB106K6R3
C 713		CKSRYB103K50
C 714		CKSRYB103K50
C 715		CKSRYB104K25

Circuit Symbol and No.	Part Name	Part No.
C 716		CKSRYB102K50
C 717		CKSRYB105K10
C 718		CKSRYB105K10
C 719		CKSRYB105K10
C 801		CKSRYB104K25
C 802	470µF/16V	CCH1331
C 803	470µF/16V	CCH1331
C 804		CKSRYB472K50
C 805		CKSRYB103K50
C 806		CEJQ470M10
C 810		CEJQ101M16
C 811	330µF/10V	CCH1181
C 812		CKSRYB103K50
C 813		CEJQ101M16
C 820		CKSRYB103K50
C 821		CKSRYB473K50
C 822		CEJQ101M16
C 823		CKSYB475K16
C 825		CEJQ470M10
C 826		CKSYB475K16
C 830		CEJQ221M6R3
C 831		CKSRYB104K25
C 833		CKSQYB105K16
C 840		CKSRYB473K50
C 861		CKSRYB473K50
C 862		CKSRYB102K50
C 863		CEJQ101M16
C 864		CEJQ100M16
C 901		CKSRYB104K25
C 902		CKSRYB104K25
C 903		CEJQ100M16
C 904		CKSRYB104K25
C 905		CKSRYB104K25
C 906		CKSRYB104K25
C 907		CKSRYB103K50
C 908		CKSRYB104K25
C 909		CKSRYB102K50
C 910		CKSRYB104K25
C 951		CKSRYB102K50
C 952		CKSRYB103K50
C 953		CKSRYB102K50
C 954		CKSRYB102K50
C 955		CCSRCH101J50
C 956		CKSRYB102K50
C 957		CKSRYB102K50
C 958		CCSRCH101J50
C 959		CCSRCH101J50
C 972		CKSRYB103K50
C 973		CEJQ100M16
C 974		CEJQ101M16
C 975		CKSRYB103K50

B

Unit Number:CWM8367
Unit Name:Keyboard Unit

MISCELLANEOUS

IC 1901	IC	TSOP4840SB1
IC 1902	IC	PD6387A
IC 1903	IC	S-80827ANUP-EDQ
IC 1905	IC	PD8096A

Circuit Symbol and No.	Part Name	Part No.
IC 1907	IC	PD3430A
IC 1908	IC	NJM2391DL1-33
IC 1909	IC	TC7SH08FU
IC 1910	IC	TC7SET08FU
IC 1911	IC	TC7SH08FU
D 1901	Diode	DAP202U
D 1902	Diode	DAN202U
D 1905	Diode	MA110
D 1910	LED	CL170UBX
D 1911	LED	CL170UBX
D 1912	LED	CL170UBX
D 1914	LED	CL170UBX
D 1915	LED	CL170UBX
D 1916	LED	CL170UBX
L 1901	Inductor	CTF1295
L 1902	Inductor	CTF1484
L 1906	Inductor	LCTC2R2K3216
L 1907	Inductor	LCTC2R2K3216
L 1911	Inductor	LCTC2R2K3216
L 1912	Chip-Inductor	LCTA2R2J3225
L 1923	Inductor	CTF1379
L 1924	Inductor	CTF1379
L 1930	Inductor	CTF1379
L 1931	Inductor	CTF1379
L 1932	Inductor-Array	CTF1421
L 1933	Inductor-Array	CTF1421
L 1934	Inductor-Array	CTF1421
L 1935	Inductor-Array	CTF1421
L 1941	Inductor-Array	CTF1421
L 1942	Inductor-Array	CTF1421
L 1944	Inductor	CTF1306
L 1945	Inductor	CTF1306
L 1948	Inductor	CTF1579
L 1949	Inductor-Array	CTF1421
L 1950	Inductor	CTF1399
X 1901	Ceramic Resonator 10.0MHz	CSS1466
S 1901	Push Switch	CSG1135
S 1902	Push Switch	CSG1135
S 1903	Push Switch	CSG1135
S 1904	Push Switch	CSG1135
S 1905	Push Switch	CSG1135
S 1906	Push Switch	CSG1135
S 1907	Push Switch	CSG1135
S 1908	Push Switch	CSG1135
S 1909	Push Switch	CSG1135
S 1910	Push Switch	CSG1135
S 1918	Encoder(VOLUME)	CSD1089
S 1919	Switch(NAVI JOY-STICK)	CSX1051
EF 1901	Filter	CCG1067

RESISTORS

R 1901	RS1/16S222J
R 1902	RS1/16S222J
R 1905	RS1/16S103J
R 1906	RS1/16S121J
R 1907	RS1/16S2R2J
R 1908	RS1/16S222J
R 1910	RS1/16S104J
R 1911	RS1/16S104J
R 1916	RS1/16S102J
R 1917	RS1/16S104J
R 1918	RS1/16S0R0J
R 1921	RS1/16S222J
R 1930	RS1/16S103J
R 1931	RS1/16S202J
R 1932	RS1/16S302J
R 1933	RS1/16S512J
R 1934	RS1/16S393J
R 1936	RS1/16S302J
R 1937	RS1/16S302J
R 1938	RS1/16S512J
R 1939	RS1/16S512J
R 1940	RS1/16S103J
R 1941	RS1/16S103J
R 1942	RS1/16S202J
R 1943	RS1/16S202J
R 1944	RS1/16S101J
R 1945	RS1/16S303J
R 1946	RAB4C101J
R 1947	RAB4C101J
R 1948	RAB4C101J
R 1949	RAB4C101J
R 1950	RAB4C101J
R 1951	RS1/16S470J
R 1952	RS1/16S470J
R 1953	RS1/16S331J
R 1954	RS1/16S331J
R 1955	RS1/16S470J
R 1956	RS1/16S470J
R 1957	RS1/16S331J
R 1958	RS1/16S331J
R 1960	RS1/16S101J
R 1961	RS1/16S820J
R 1962	RS1/16S101J
R 1963	RS1/16S820J
R 1964	RS1/16S271J
R 1965	RS1/16S271J
R 1966	RS1/16S331J
R 1967	RS1/16S331J
R 1968	RS1/16S271J
R 1969	RS1/16S271J
R 1970	RS1/16S331J
R 1971	RS1/16S331J
R 1972	RS1/16S101J
R 1976	RS1/16S331J
R 1977	RS1/16S331J
R 1978	RS1/16S331J
R 1979	RS1/16S331J
R 1989	RS1/16S472J
R 1990	RS1/16S472J
R 1991	RAB4C103J
R 1992	RS1/16S473J
R 1993	RS1/16S473J
R 1994	RS1/16S473J
R 1995	RS1/16S472J
R 1996	RS1/16S473J
R 1997	RS1/16S393J
R 1998	RS1/16S0R0J
R 1999	RS1/16S103J

CAPACITORS

C 1901		CSZSR100M10
C 1902		CKSRYB105K10
C 1904		CSZSR100M10
C 1906	4.7µF	CCG1111
C 1907		CKSRYB105K10

Circuit Symbol and No.	Part Name	Part No.
C 1908		CSZSR100M16
C 1909		CKSRYB105K10
C 1911		CKSRYB104K25
C 1914		CKSRYB103K50
C 1916		CKSRYB103K50
C 1917		CSZSR100M10
C 1918		CKSRYB103K50
C 1919		CCSRCH101J50
C 1920		CCSRCH101J50
C 1924		CCSRCH101J50
C 1925		CCSRCH102J50
C 1926		CSZSR100M10
C 1927		CKSRYB104K25
C 1928		CKSRYB104K25
C 1929		CKSRYB104K25
C 1930		CKSRYB104K25
C 1931		CCSRCH101J50
C 1933		CKSRYB104K25
C 1934		CKSRYB104K25
C 1935		CKSRYB104K25
C 1937		CKSRYB104K25
C 1938		CKSRYB104K25
C 1939		CKSRYB104K25
C 1947		CCSRCH101J50
C 1948		CCSRCH101J50
C 1949		CKSRYB103K50
C 1950		CKSRYB103K50
C 1952		CCSRCH101J50
C 1953		CCSRCH101J50
C 1960		CKSRYB221K50
C 1963		CCSRCH101J50
C 1964		CKSRYB104K25
C 1966		CSZSR4R7M10
C 1967		CSZSR100M10
C 1968		CKSRYB104K25
C 1969		CKSRYB104K25
C 1971		CKSRYB103K50
C 1972		CCSRCH101J50
C 1973		CCSRCH101J50
C 1976		CKSRYB104K25
C 1977		CKSRYB104K25
C 1978		CKSRYB103K50
C 1979		CCSRCH101J50
C 1980		CCSRCH101J50
C 1981		CCSRCH101J50
C 1982		CCSRCH101J50
C 1983		CCSRCH101J50

Circuit Symbol and No.	Part Name	Part No.
C 1801		CKSQYB105K16

Miscellaneous Parts List

	PU Unit(SERVICE)(P9)	CXX1480
M 1	Motor Unit(SPINDLE)	CXB6007
M 2	Motor Unit(LOADING/CARRIAGE)	CXB5903
	FAN MOTOR	CXM1207

C

Unit Number:CWM8366
Unit Name:Panel Unit

MISCELLANEOUS

D 1801	LED	CL220SRCTS
S 1801	Push Switch(CD EJECT)	CSG1135

RESISTORS

R 1801	RS1/10S560J
R 1802	RS1/10S560J

CAPACITORS

6. ADJUSTMENT
6.1 TEST MODE

CD MECH. TEST MODE

While pressing the [4] and [6] buttons Simultaneously, turn on the ACC And BACKUP.

See page 50.

DISPLAY TEST MODE

While pressing the [1] and [3] buttons Simultaneously, turn on the ACC And BACKUP.

"TEST" is displayed.

Press the BAND/ESC button twice.

SERVICE GARAGE MODE

Insert the NAVI DISC.

Press the NAVI/OK button.

"DESTINATION" is displayed.

Press the BACK button.

"SAVE POSITION" is displayed.

Press the [3] and [5] buttons Simultaneously.

See page 48.

Display samples

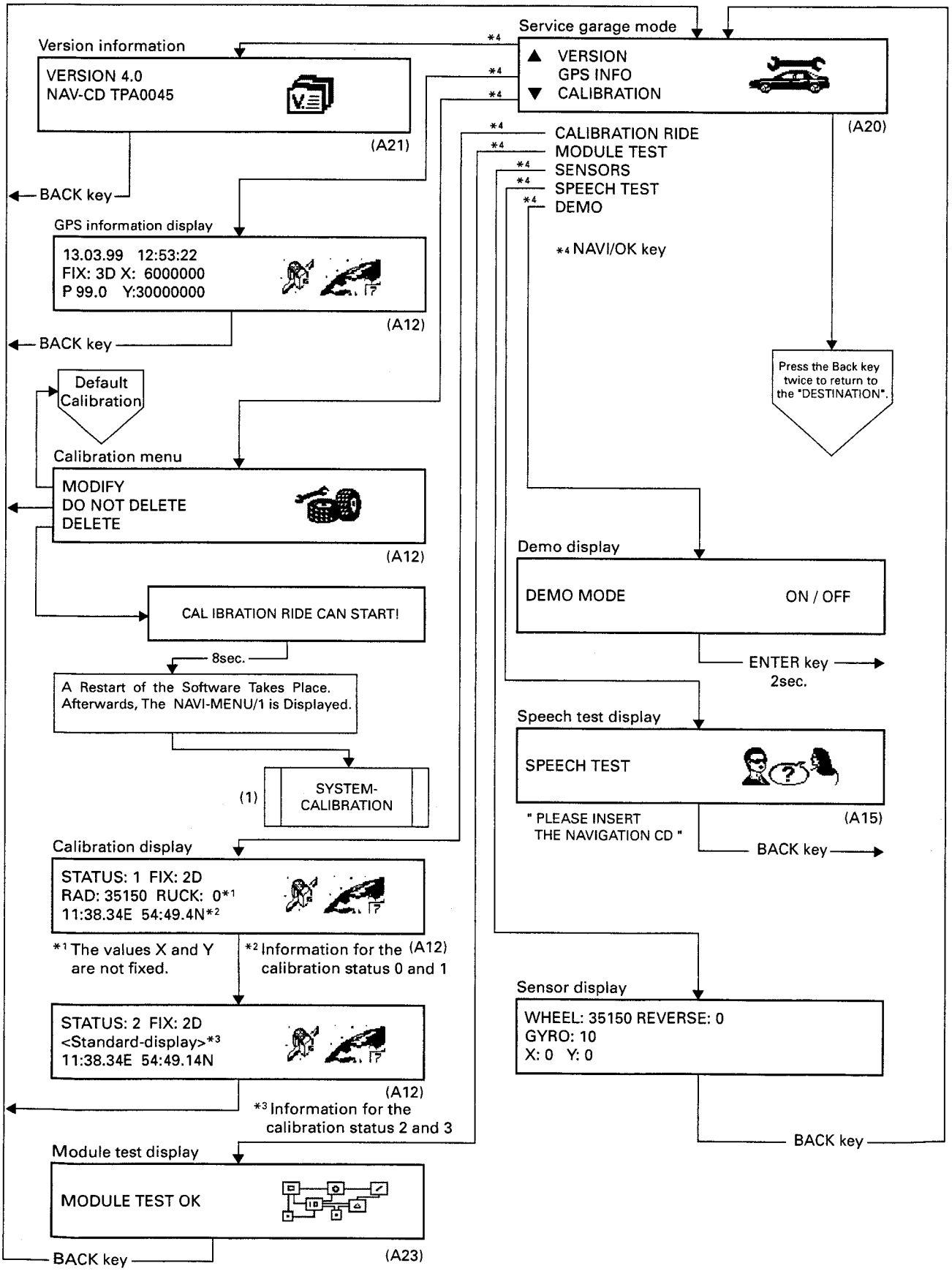
ROM_DATA_BUS	○	CPU : V713 ← Display Controller (IC1902) version
ROM_DATA_BUS	○	ROM : V604

○ : OK
× : NG

FONT ROM(IC1905) version

6.2 SERVICE GARAGE MODE

SERVICE GARAGE MODE



6.3 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to VREF(approx. 2.1V) instead of GND.
  If VREF and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to VREF and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VREF with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident VREF comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- The RFI and RFO signals are easy to oscillate because of a wide band. When observing them, insert a resistor of about 1 kΩ to the series.

- This equipment will not guarantee the load ejection operation when the mechanical unit is turned upside down. In particular, if the ejection operation is incorrectly performed and recovery is disabled, the recovery is enabled by resetting a product or turning ACC off to on.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
  Reset while pressing the **4** and **6** keys together.

- Test mode cancellation
  Switch ACC, back-up OFF.

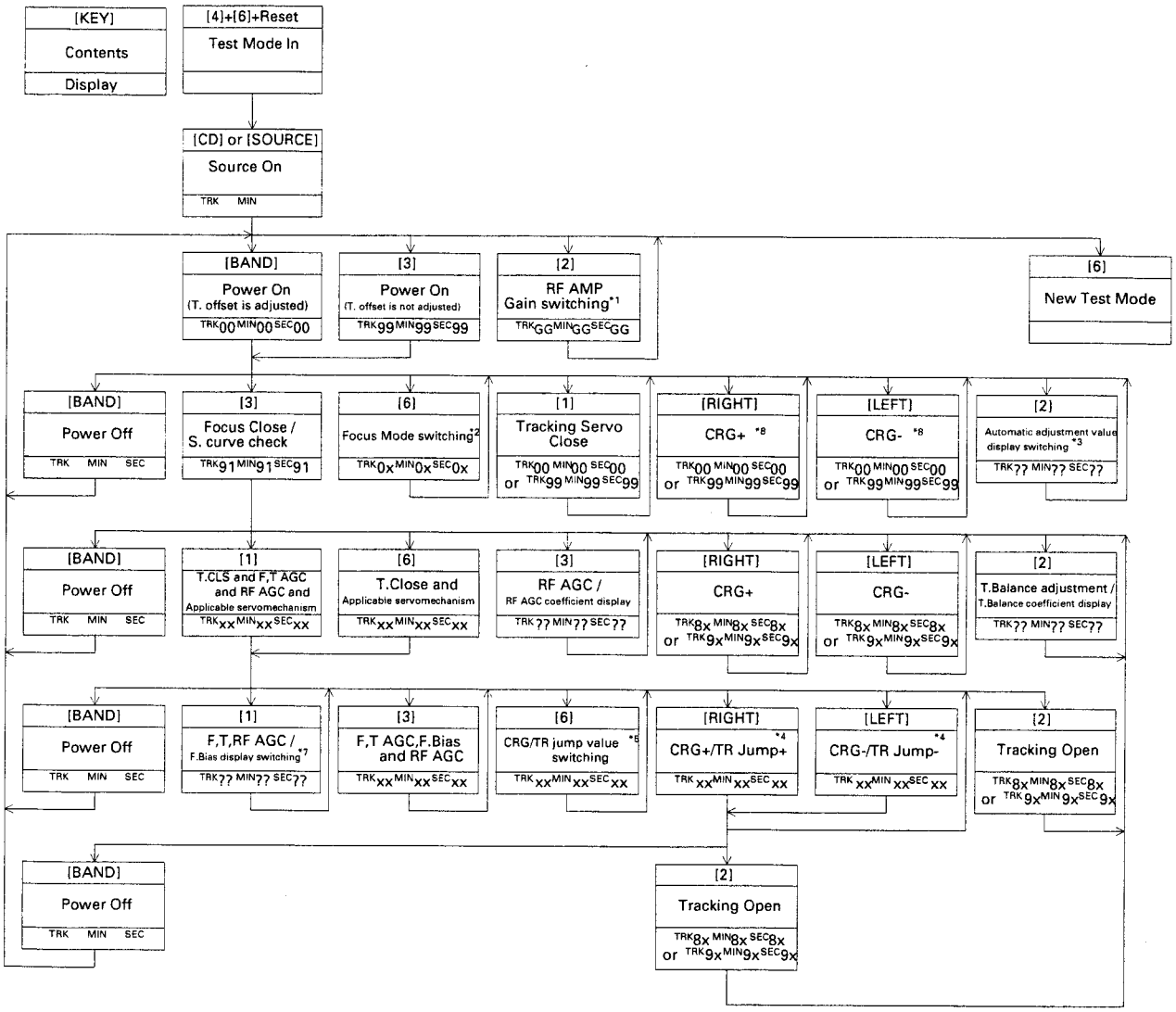
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.

- If the UP or DOWN key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).

- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the "Tracking close" status when the key is released.

- Powering Off/On resets the jump mode to "Single TR(91)", the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.

● Flow Chart



*1) TYP (TRK MIN SEC) → +12dB ($TRK_{12}\ MIN_{12}\ SEC_{12}$)

*2) Focus Close setting ($TRK_{00}\ MIN_{00}\ SEC_{00}$ or $TRK_{99}\ MIN_{99}\ SEC_{99}$) → S. curve check setting ($TRK_{01}\ MIN_{01}\ SEC_{01}$) → F. EQ measurement setting ($TRK_{02}\ MIN_{02}\ SEC_{02}$)

*3) F.Offset Display → T.Offset Display → Switch to the order of the original display

*4) 1TR/32TR/100TR

*5 Single TR ($TRK_{91}\ MIN_{91}\ SEC_{91}$ or $TRK_{81}\ MIN_{81}\ SEC_{81}$) → 32TR ($TRK_{92}\ MIN_{92}\ SEC_{92}$ or $TRK_{82}\ MIN_{82}\ SEC_{82}$) → 100TR ($TRK_{93}\ MIN_{93}\ SEC_{93}$ or $TRK_{83}\ MIN_{83}\ SEC_{83}$) → CRG Move ($TRK_{94}\ MIN_{94}\ SEC_{94}$ or $TRK_{84}\ MIN_{84}\ SEC_{84}$)

*6) Only at the time of CRG move or 100TR jump

*7) TRK/MIN/SEC → F.AGC Gain → T.AGC Gain → F.Bias → RF AGC Gain

*8) CRG motor voltage = 2 [V]

[Key]	Operation	
	Test Mode	New Test Mode
[BAND]	Power On/Off	Error occurrence time/ cause display switching
[RIGHT]	CRG +/TR Jump+ (Direction of the external surface)	TRK+/FF
[LEFT]	CRG -/TR Jump- (Direction of the internal surface)	TRK-/REV
[1]	T.CLS and AGC and Applicable servomechanism/ AGC,AGC display switching	SCAN
[2]	RF Gain switching/Offset adjustment display/ T.Balance adjustment/T.OPN	MODE
[3]	F.CLS,S.Curve/Rough Servo and RF AGC/ F,T,RF AGC	(ITP)
[4]	SPDL 1X/2X switching (Double-speed compatibility only)	-
[5]	Error rate measurement	-
[6]	F.Mode switching/T.CLS/CRG,TR Jump switching	Auto/Manual switching

6.4 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

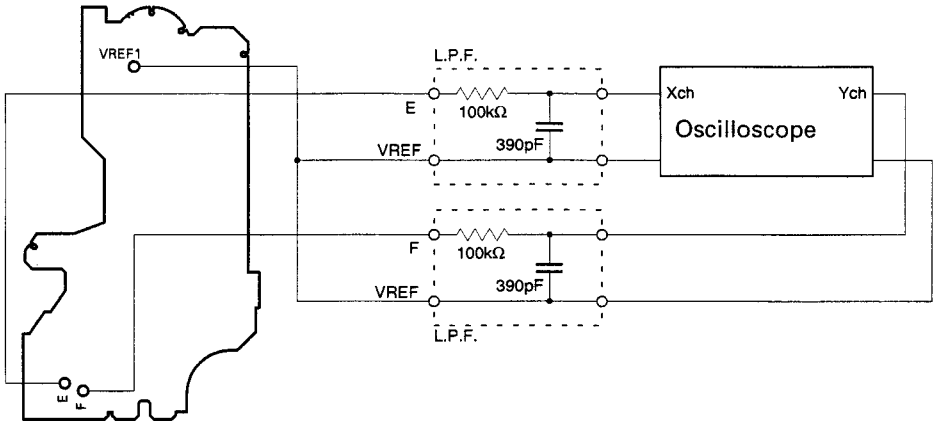
• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, VREF1
• Disc	• ABEX TCD-784
• Mode	• TEST MODE

CD CORE UNIT



• **Checking Procedure**

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the UP and DOWN buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3**. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

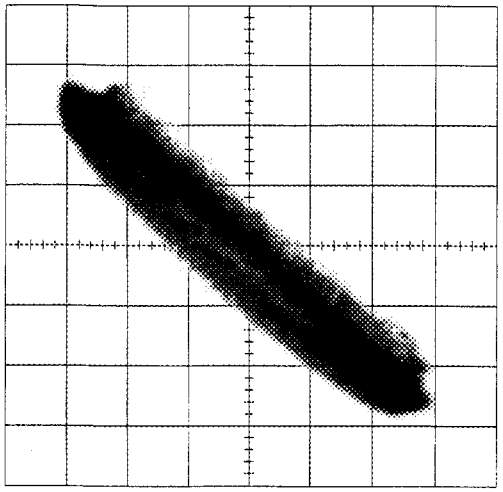
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

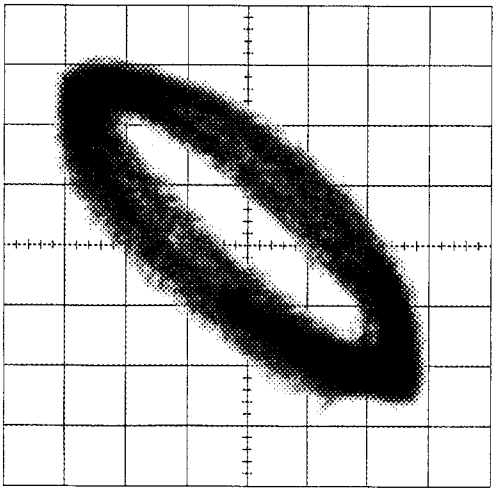
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

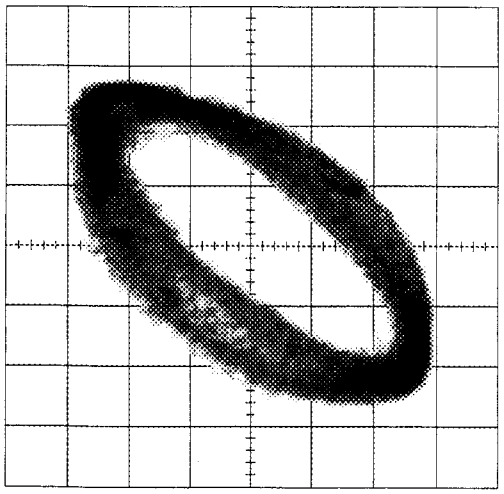
0°



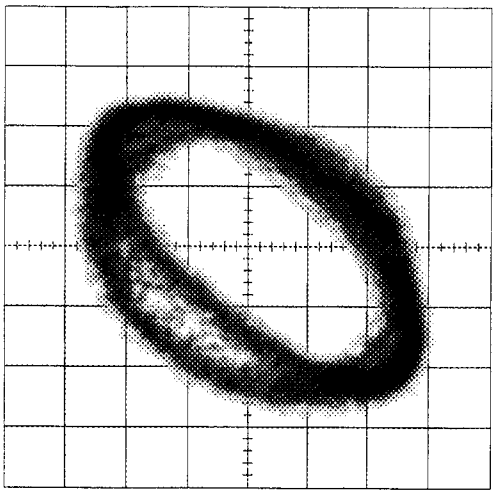
30°



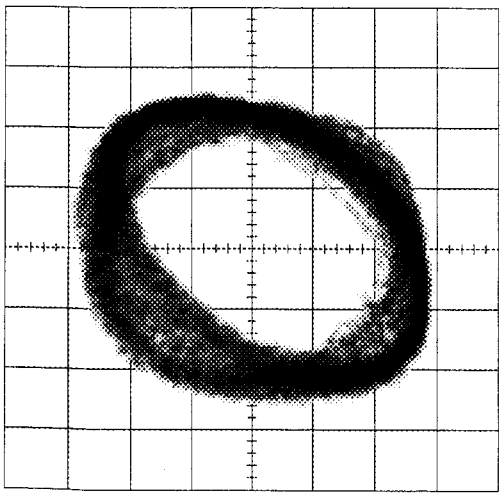
45°



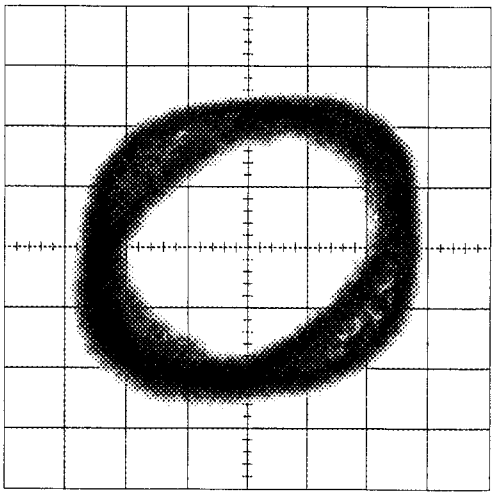
60°



75°



90°



6.5 ERROR CODE(CD)

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Communication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

① Turn on the current test mode by starting the reset from the key.

② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [Jump Mode Selector] key while maintaining the regulator turned off.

③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off. You can reset the new test mode by turning on the reset start.

(2) Key Correspondence

Key	Test mode		New test mode	
	Regulator Off	Regulator On	In-play	Error Production
BAND	To regulator on	To regulator off	–	Time/Err.No. switching
RIGHT	–	FWD-Kick	FF/TR+	–
LEFT	–	REV-Kick	REV/TR-	–
1	–	Tracking Close	Scan	–
2	–	Tracking Open	Mode	–
3	–	Focus Close	–	–
–	–	Focus Open	–	–
–	–	Jump Off	–	–
6	To new test mode	Jump mode switching	Auto/Manu	–

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	LOCK = Low continued for 150 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 500 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

(4) Display of Operational Status during Setup

Status No.	Contents	Protective action
21	Focus search start	Focus search timeout.
22	Focus search 2	Focus search timeout.
23	Focus search 3	Focus search timeout.
24	Focus search 4	Focus search timeout.
25	Focus search(Setup protection)	Focus slips off.
26	Focus search(Fast recovery)	Focus slips off.
27	RF detection	Focus slips off.
28	Spindle rough servocontrol	Focus slips off.
29	Tracking balance adjustment start	Focus slips off.
30	Tracking balance adjustment 2	Focus slips off.
31	Tracking balance adjustment 3	Focus slips off.
32	Tracking close start(Spindle stationary servocontrol setting)	Focus slips off.
33	Tracking close 2	Focus slips off.
34	Tracking close 3	Focus slips off.
35	Focus/Tracking AGC start	Focus slips off.
36	Focus/Tracking AGC 2	Focus slips off.
37	Focus/Tracking AGC 3	Focus slips off.
38	Focus/Tracking AGC 4	Focus slips off.
39	Focus/Tracking AGC 5	Focus slips off.
40	Focus/Tracking AGC 6	Focus slips off.
41	Focus/Tracking AGC 7	Focus slips off.
42	Focus/Tracking AGC 8	Focus slips off.
43	FE bias start	Focus slips off.
44	FE bias 2	Focus slips off.
45	RF AGC start	Focus slips off.
46	RF AGC 2	Focus slips off.
47	Lock check start	Focus slips off.
48	Lock is being checked	Focus slips off.
49	Subcode check start	Focus slips off, spindle lock is not performed.
50	Subcode is being checked	Focus slips off, no subcode can be read.

(5) Display Examples

1) During Setup

8-digit display, 6-digit display	4-digit display(Auto setting)	4-digit display(Manual setting)
TNO. Min Sec	TNO.	Min Sec
11 11' 11"	11	11' 11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

(A) Error display ((A)←→(B), (C) : BAND key)

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(B) Error occurrence timing display in track no. ((B)←→(C) : Auto/Manual key)

8-digit display, 6-digit display	4-digit display(Auto setting)
TNO. Min Sec	TNO.
10 40' 05"	10

(C) Error occurrence timing display in absolute time. ((B)←→(C) : Auto/Manual key)

8-digit display, 6-digit display	4-digit display(Manual setting)
TNO. Min Sec	Min Sec
10 40' 05"	40' 05"

7. GENERAL INFORMATION
7.1 DIAGNOSIS
7.1.1 DISASSEMBLY

● **Removing the Case (not shown)**

1. Remove the Case.

● **Removing the CD Mechanism Module (Fig.1)**

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● **Removing the Detach Grille Assy (Fig.1)**

2 Remove the two screws and then remove the Detach Grille Assy.

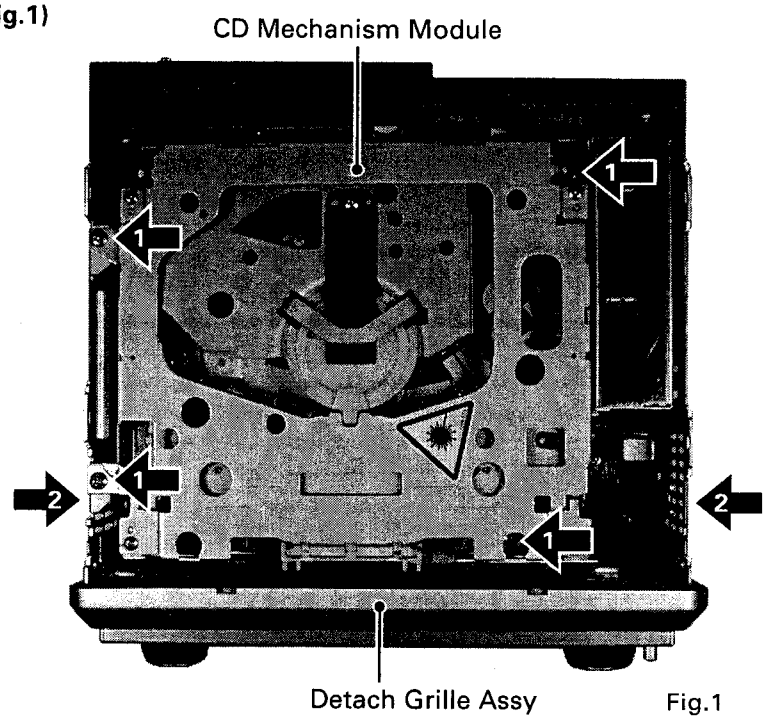


Fig.1

● **Removing the Fan Motor (Fig.2)**

1 Remove the two screws.

Disconnect the connector and then remove the Fan Motor.

● **Removing the Heat Sink (Fig.2)**

2 Remove the two screws.

3 Remove the three screws and then remove the Heat Sink.

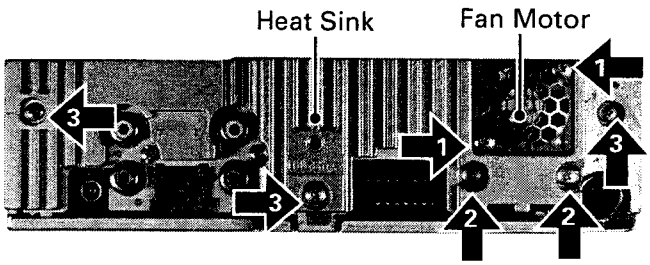


Fig.2

● **Removing the Main Unit (Fig.3)**

1 Remove the screw.

2 Remove the screw.

3 Remove the three screws and then remove the Main Unit.

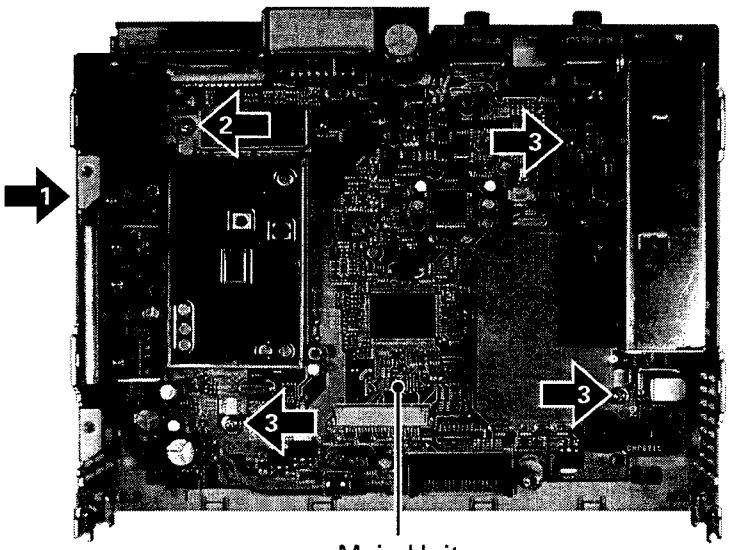
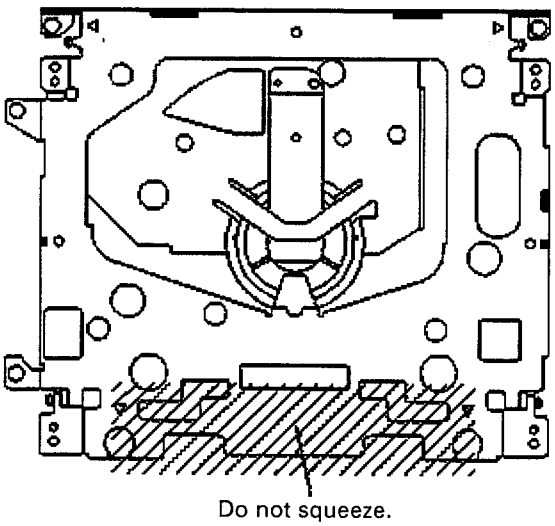


Fig.3

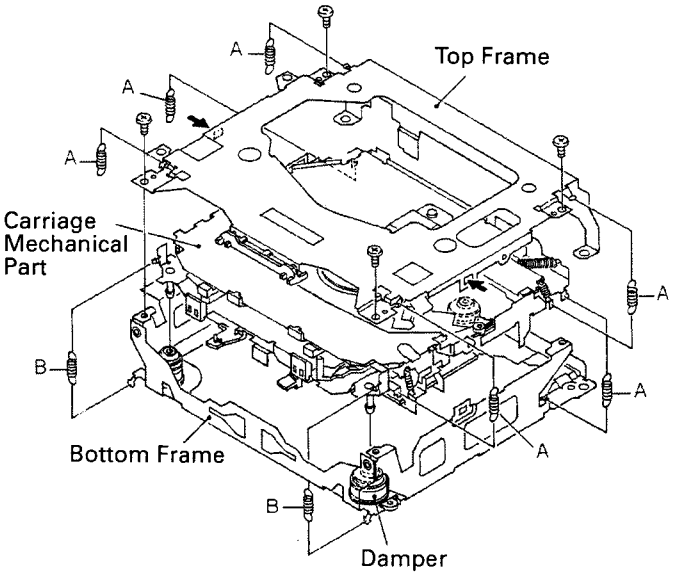
● How to hold the Mechanical Unit

1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



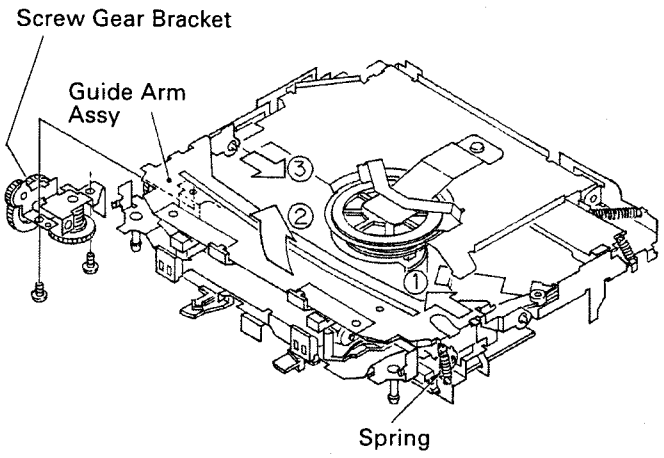
● How to remove the Top and Bottom Frame

1. When the disk is in "clamp" state, unlock Spring A (6 pieces) and Spring B (2 pieces), and unscrew screws (4 pieces).
2. Unlock each 1 of pawl at the both side of the frame, then remove the top frame.
3. Remove the Carriage Mechanical part in such way that; you remove the mechanical part from 3 pieces of Damper while slowly pulling up the part.
4. Now, the top frame has been removed, and under this state, fix the genuine Connector again, and eject the disk.
   (Caution)
   When you reassemble the Carriage Mechanical part, apply a bit of alcohol to Dampers.



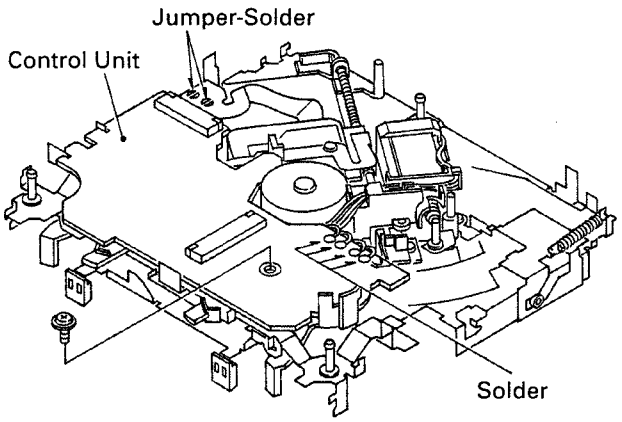
● How to remove the Guide Arm Assy

1. Unlock the spring (1 piece) at the right side of the assembly.
2. Unscrew screws (2 pieces), then remove the Screw Gear Bracket.
3. Shift the Guide Arm Assy to the left and slowly rotate it to the upper direction.
4. When the Guide Arm Assy rotates approximately 45 degree, shift the Assy to the right side direction and remove it.



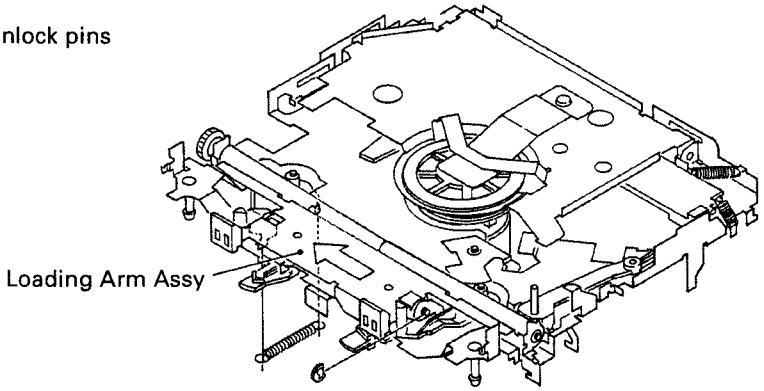
● How to remove the Control Unit

1. Give jumper-solder treatment to the Flexible Wire of the Pickup unit, then remove the wire from the Connector.
2. Remove all 4 points of solder-treatment on the Lead Wire. Also, unscrew the screw(1 piece).
3. Then, Remove the Control unit.
   (Caution)
   Be careful not to damage SW when you reassemble the Control Unit into the device.



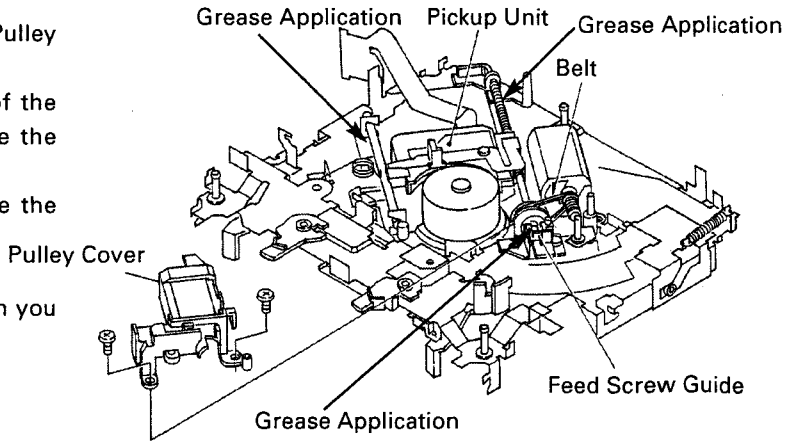
● How to remove the Loading Arm Assy

1. Unlock the spring (1 piece) and remove the E ring (1 piece) of the Fulcrum Shaft.
2. Shift the arm to the left side direction and unlock pins (2 pieces).

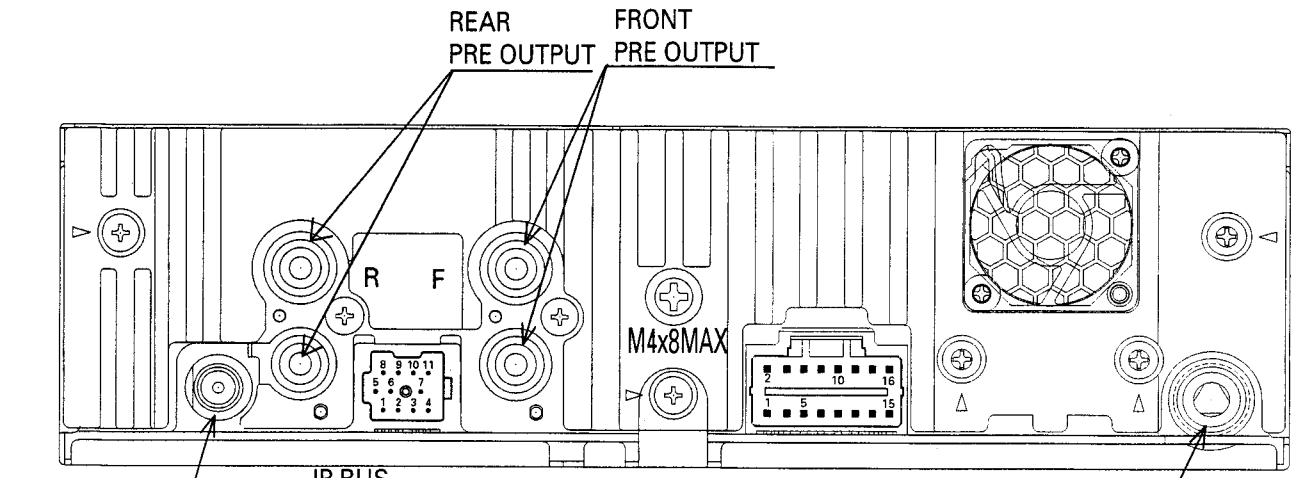


● How to remove the Pickup Unit

1. Unscrew 2 pieces of screws, then remove the Pulley Cover.
2. Remove the Feed Screw unit from the pawl of the Feed Screw Guide (The pawl is located inside the guide).
3. Remove the belt from the Pulley, then remove the Pickup unit.
   (Caution)
   Make sure not to stain the belt with grease when you fix the belt.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



IP BUS

1. BUS+
2. GND
3. GND
4. NC
5. BUS-
6. GND
7. BUS L+ INPUT
8. ASENB
9. BUS R+ INPUT
10. BUS R- INPUT
11. BUS L- INPUT

1. BACKUP
2. GND
3. ILL
4. B REMOTE
5. ACC
6. SPEED PULSE
7. REVERSE
8. TEL
9. RL-
10. FL-
11. RL+
12. FL+
13. RR-
14. FR-
15. RR+
16. FR+

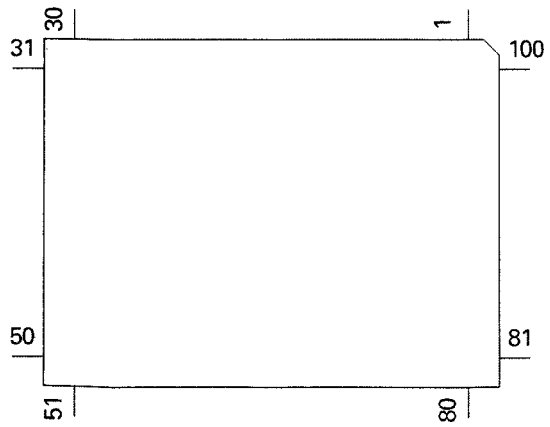
7.2 IC

● **Pin Functions (PD5783A)**

Pin No.	Pin Name	I/O	Function and Operation
1	BSO	I/O	PBUS:Communication data input/output
2	BSCK	I/O	PBUS:Communication data clock input/output
3	NVOLR	O	NAVI:Guide volume R output
4	NVOLL	O	NAVI:Guide volume L output
5	VST	O	EVOL:Strobe output
6	VDT	O	EVOL:Data output
7	VCK	O	EVOL:Clock output
8	BYTE		Vss
9	CNVSS		Vss
10	ROMDT	I	ROM correction:Data input
11	ROMCK	O	ROM correction:Clock output
12	RESET	I	Reset input
13	XOUT		Clock output
14	VSS		Power supply input(Vss)
15	XIN		Clock input
16	VCC		Power supply input(Vcc)
17	NC		Not used(Vcc)(Pull up)
18	$\overline{\text{RCK}}$	I	RDS:Clock input
19	$\overline{\text{LDET}}$	I	RDS:PLL lock detection input
20	$\overline{\text{BSENS}}$	I	Backup sense input
21	RX2	I	IPBUS:Data input
22	IPPW	O	IPBUS:Driver power supply control output
23	ROMCS	O	ROM correction:Chip select output
24	PEE	O	Beep tone output
25	RDS57K	I	RDS:57kHz pulse count input
26	ASESBO	O	ACC sense output
27	PULSEIN	I	Speed sense pulse input
28	$\overline{\text{TMUTE}}$	O	Tuner mute output
29	RX	I	IPBUS:Data input
30	TX	O	IPBUS:Data output
31	DPDT	O	GRILLE:Data output
32	KYDT	I	GRILLE:Data input
33	$\overline{\text{ISENS}}$	I	Illumination sense input
34	SWVDD	O	GRILLE:Display controller power supply control output
35	STON	O	NAVI UNIT data output
36	NTOS	I	NAVI UNIT data input
37	SYSPW	O	System power control output
38	LOCL	O	TUNER:Local L output
39	$\overline{\text{EJECT}}$	I	Eject key input
40	LOCH	O	TUNER:Local H output
41	AM_$\overline{\text{FM}}$	O	TUNER:AM/FM power supply control output
42	$\overline{\text{ST}}$	I	TUNER:Stereo input
43	SD	I	TUNER:SD input
44	DALMON	O	For consumption low-current output
45	$\overline{\text{CURRQ}}$	O	RDS:Voltage FIX output
46	SDBW	I	RDS:In case of NF, SD input
47	ILMPOW	O	Illumination power supply control output
48	$\overline{\text{DRST}}$	O	RDS:Reset output
49	$\overline{\text{RDSLK}}$	I	RDS:Lock signal input
50	RDT	I	RDS:Data input
51	TUNPDI	I	TUNER:PLL communication data input
52	TUNPDO	O	TUNER:Data output(PLL)
53	TUNPCK	O	TUNER:Clock output(PLL)
54	TUNPCE	O	TUNER:Chip enable output(PLL)
55	$\overline{\text{TUNPCE2}}$	O	TUNER:Chip enable output(EEPROM)
56	VROT_A	I	Rotary encoder input A
57	VROT_B	I	Rotary encoder input B
58	NROT_1	I	Rotary stick input 1

Pin No.	Pin Name	I/O	Function and Operation
59	NROT_2	I	Rotary stick input 1
60	$\overline{G\_ONUG}$	O	GPS:Power supply control output
61	$\overline{G\_RES}$	O	GPS:Reset output
62	VCC		Power supply
63	G_PWRES	I	GPS:Power supply sense input
64	VSS		Power supply input(Vss)
65	REVSENS	I	Reverse sense input
66	AMPMUTE	O	Amp mute output
67	$\overline{CC\_NMI}$	O	NAVI:NMI output
68	$\overline{CC\_RES}$	O	NAVI:Reset output
69	$\overline{BRXEN}$	I/O	PBUS:Communication input/output
70	$\overline{BRST}$	O	PBUS:Reset output
71	$\overline{BSRQ}$	I	PBUS:Communication request input
72	$\overline{DSENS}$	I	Detach sense input
73	$\overline{T\_RDSID}$	I	TMC:RDS ID input
74	$\overline{ASENS}$	I	ACC sense input
75	GMUTE	O	Guide mute output
76	$\overline{T\_SYRES}$	O	TMC:Reset output
77	T_CE	O	TMC:Enable output
78	T_DI	I	TMC:Data input
79	T_CL	O	TMC:Clock output
80	T_DO	O	TMC:Data output
81	TELIN	I	TEL:Cellular mute input
82	TP_SD	I	TMC:PLL SD input
83	TP_DI	I	TMC:PLL data input
84	TP_DO	O	TMC:PLL data output
85	TP_CK	O	TMC:PLL clock output
86	TP_CE1	O	TMC:PLL enable output
87	MUTE	O	Mute output
88	OELPW	O	OEL power supply output
89	TESTIN	I	Test program input
90	NL2DT	I	RDS:Noise level 2
91	NC		Connect to VDD
92	$\overline{CSENS}$	I	Flap open/close sense input
93	FLPILM	O	Inside of flap illumination output
94	T_SL		TMC:PLL signal level
95	NL1		RDS:Noise level input 1
96	AVSS		AD converter power supply input(Vss)
97	SL		TUNER:Signal level input
98	VREF		AD converter reference voltage(Vref)
99	AVCC		AD converter power supply input(Vcc)
100	BSI	I	PBUS:Communication data input

*PD5783A

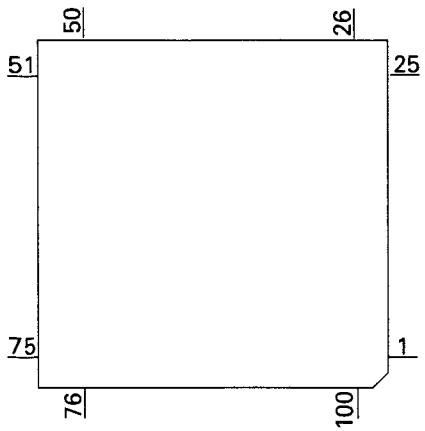


IC's marked by * are MOS type.
Be careful in handling them because they are ver liable to be damaged by electrostatic induction.

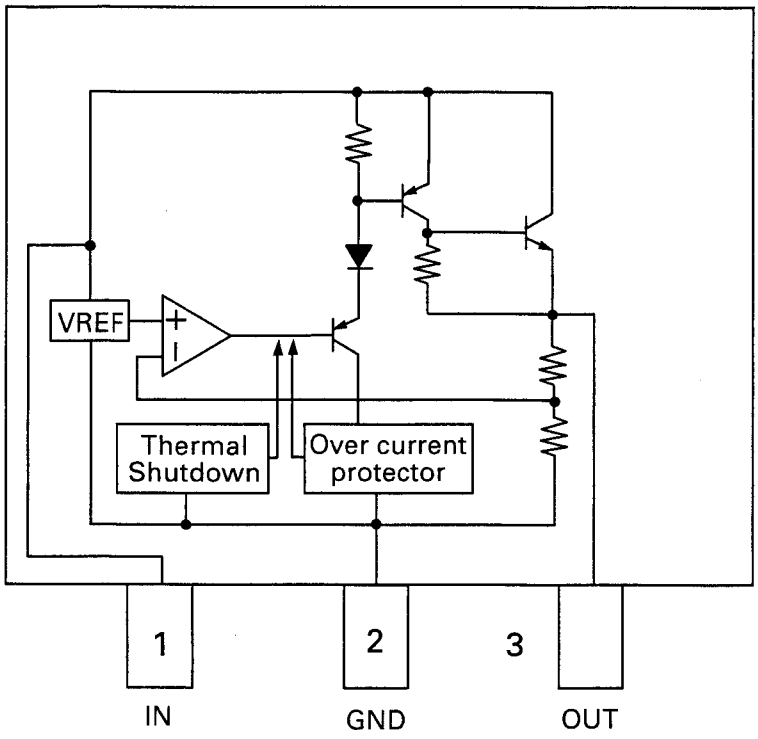
● Pin Functions (PD6387A)

Pin No.	Pin Name	I/O	Function and Operation
1-4	A18-21	O	Bus address output
5-7	NC	O	Not used
8	A01	O	Bus address output
9	VSS		DGND
10-20	A02-12	O	Bus address output
21	VCC5	O	VDD connection
22-24	A13-15	O	Bus address output
25	DSPDT	I	Display data input
26	KEYDT	O	Key data output
27-32	NC		Not used
33	AVCC		VDD connection
34	AVRH		VDD connection
35	AVSS		VSS connection
36-38	KDT1-3	I	Key data input
39	NC		Not used
40	VSS		VSS connection
41-43	NC		Not used
44	FLASH	I	VDD connection
45	REMIN	I	Remote control signal input
46	NC		Not used
47,48	MD0,1		VDD connection
49	MD2		VSS connection
50-57	NC		Not used
58	OEL_CS	O	OEL controller chip select output
59	ROM_CS	O	ROM chip select output
60-66	NC		Not used
67	OEL_RESET	O	OEL controller reset output
68	NC		Not used
69	ROM_RD	O	ROM read enable output
70	OEL_WR	O	OEL controller write output
71-73	NC	O	Not used
74	RDY	I	Ready signal input
75	CPU_RESET	I	Reset input
76	CLK	O	Bus clock output
77	NC		Not used
78	DGND		DGND connection
79	GND		GND connection
80	XO	O	Crystal oscillating element connection
81	XI	I	Crystal oscillating element connection
82	VCC3		VDD connection
83-98	D00-15	I/O	Bus data input/output
99,100	A16,17	O	Bus address output

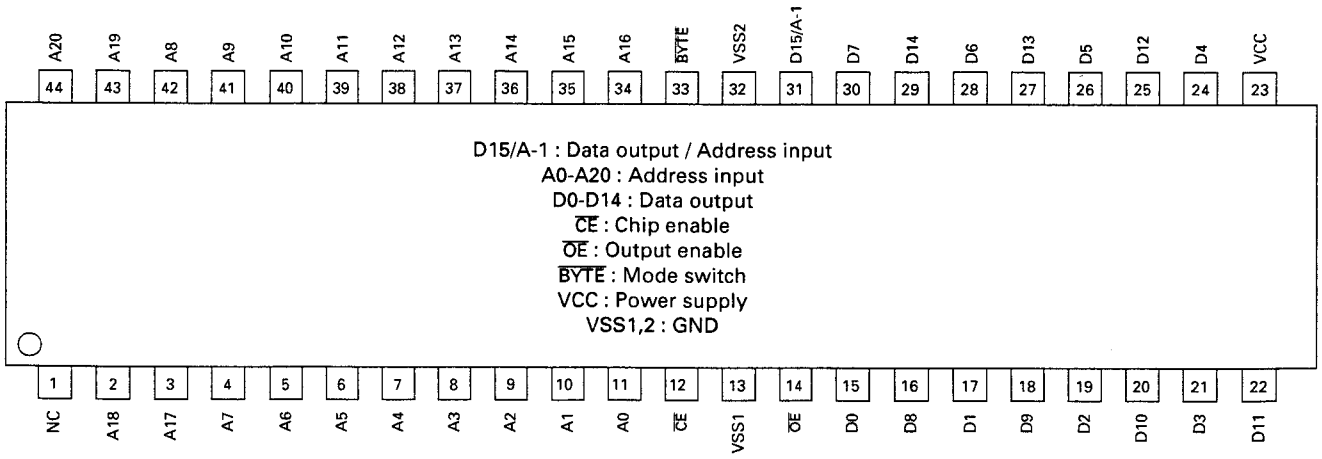
*PD6387A



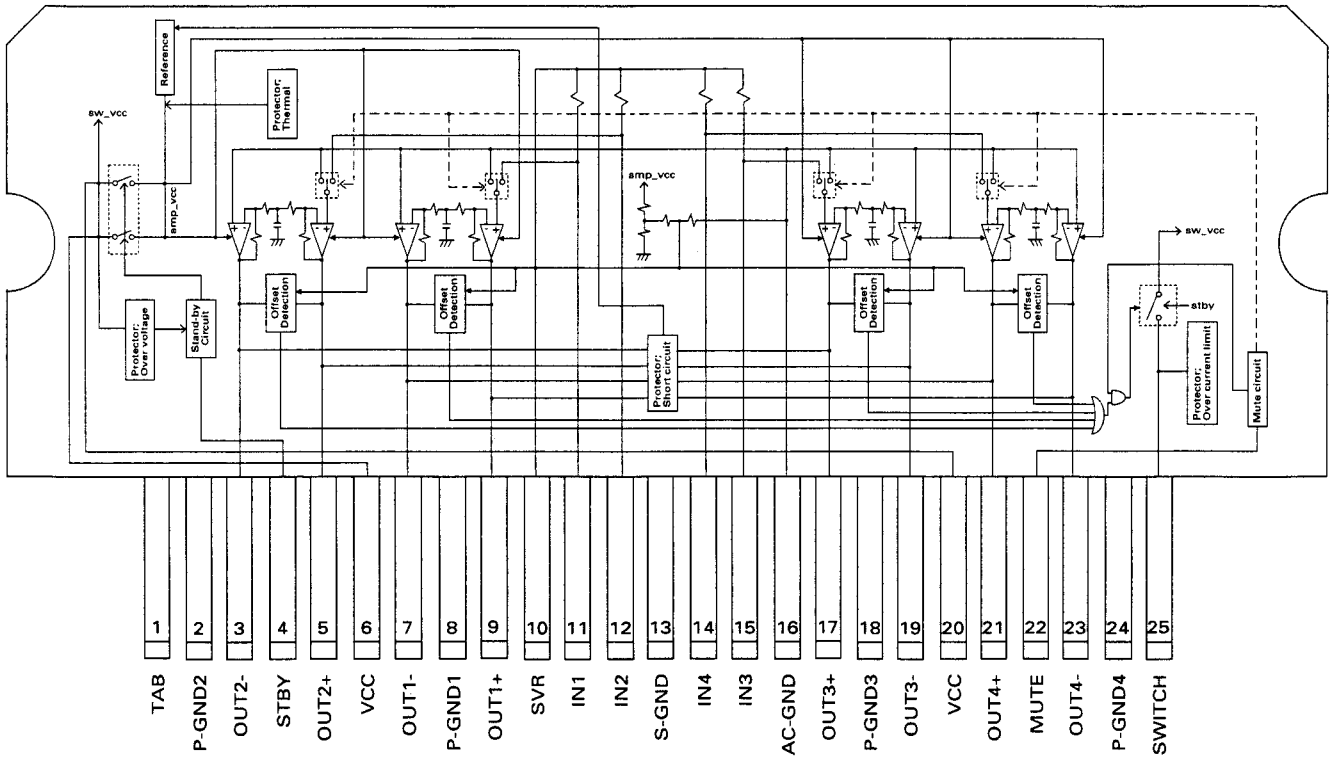
NJM2391DL1-33



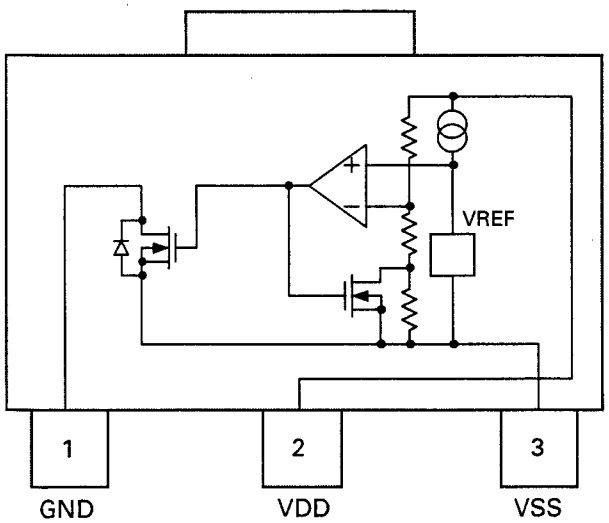
*PD8096A


A20 A19 A8 A9 A10 A11 A12 A13 A14 A15 A16 BYTE VSS2 D15/A-1 D7 D14 D6 D13 D5 D12 D4 VCC
44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23
D15/A-1 : Data output / Address input
A0-A20 : Address input
D0-D14 : Data output
CE : Chip enable
OE : Output enable
BYTE : Mode switch
VCC : Power supply
VSS1,2 : GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
NC A18 A17 A7 A6 A5 A4 A3 A2 A1 A0 CE VSS1 OE D0 D8 D1 D9 D2 D10 D3 D11

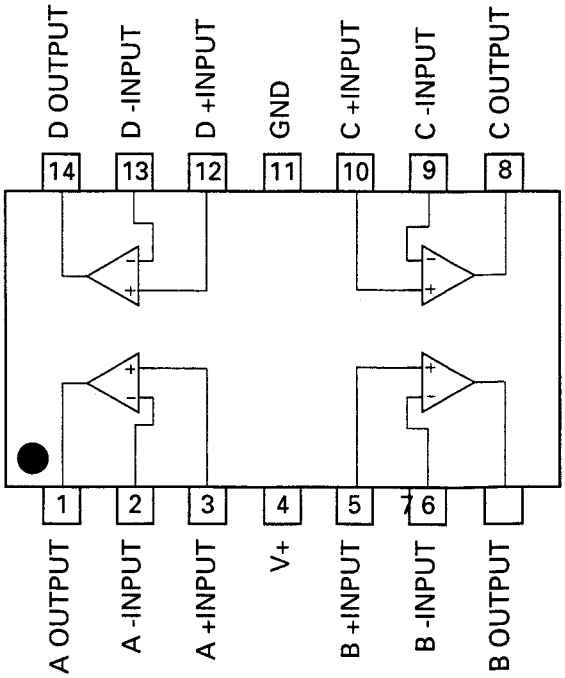
PAL007A



S-80827ANUP-EDQ



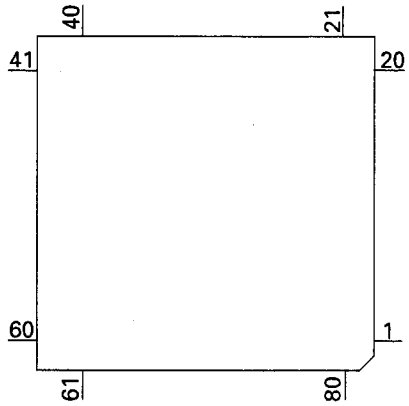
NJM2058V



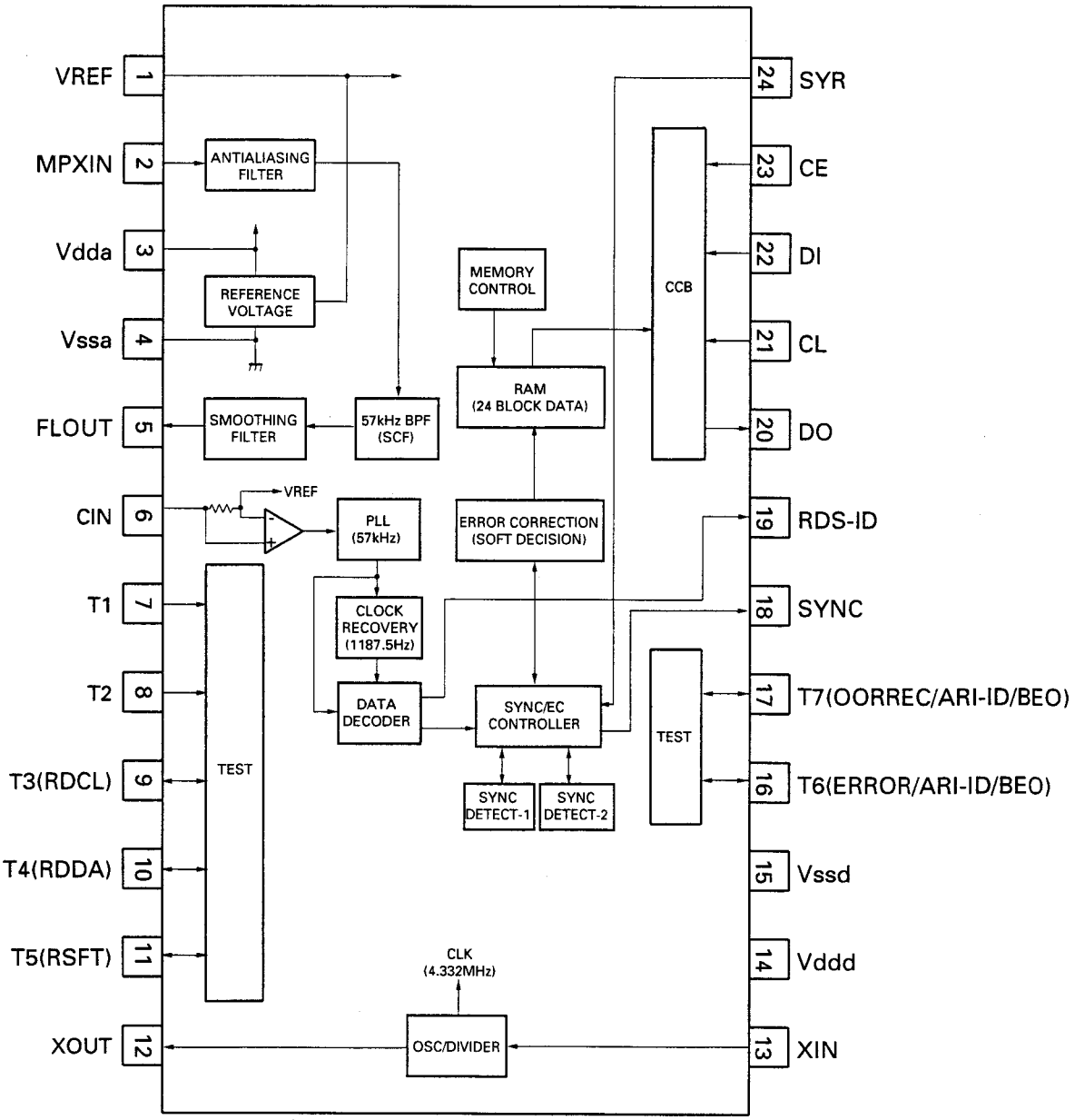
● Pin Function (PE5320A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	$\overline{\text{BSCK}}$	I/O	/C	Input/output of P-Bus serial clock
2	BDATA	I/O	/C	Input/output of P-Bus serial data
3	CONT	O	C	Output of control of power supply to servo driver
4	CLCONT	O	C	Output for switching between driver inputs
5	LOEJ	O	C	Output for switching between LOAD/EJECT directions
6	$\overline{\text{HOME}}$	I		Input of sensing Home SW
7	$\overline{\text{RESET}}$	I		Input of system reset
8	VDD			Positive power supply (+5V)
9	X2			Connected to the oscillator for the main clock (25 MHz)
10	X1	I		Connected to the oscillator for the main clock (25 MHz)
11	VSS			Potential of GND
12-14	CBANK0-2	O	C	Output 0-2 of bank settings of Compression IC (Open)
15	$\overline{\text{CRST}}$	O	C	Output of reset control of Compression IC (Open)
16-21	NC			Open
22	DSET	O	C	Output for lighting the disc set indicator (Open)
23, 24	NC			Open
25	DSPMUTE	O	C	Output of DSP Mute (Open)
26	NC			Open
27	SUBOK	O	C	Output of O.K. (sub code read)
28	NC			Open
29	BRXEN	I/O	/C	P-Bus receiving enabled
30	CDMUTE	O	C	Output of control of CD Mute
31	CD5VON	O	C	Output of control of CD +5V power supply
32, 33	NC			Open
34	$\overline{\text{EMPH}}$	O	C	Output of information on emphasis (Open)
35	NC			Open
36	$\overline{\text{XRST}}$	O	C	Output of control of CD LSI reset
37	NC			Open
38	XCE	O	C	Output for chip enable of CD LSI
39	$\overline{\text{XSCK}}$	O	C	Output for clock of CD LSI
40-43	XPIO3-0	I/O	/C	Input/output for data of CD LSI
44	NC			Open
45	VSS			Potential of GND
46	NC			Connected to VSS
47	NC			Open
48	VDCONT	O	C	Output of control of VD power supply
49-51	NC			Open
52	$\overline{\text{BSRQ}}$	O	C	Output of request in P-Bus polling
53	NC			Open
54	$\overline{\text{ADENA}}$	O	C	Output of control of A/D reference voltage supply
55	VDD			Positive power supply (+5V)
56	CSENS			Input of sensing the flap closed
57	VDSENS			Input of sensing short of VD power supply
58, 59	NC			Open
60	TEMP			Input of sensing information on temperature
61, 62	NC			Open
63	DSCSNS			Input of sensing disc status
64	AVDD			Power supply of A/D converter
65	AVREF			Input of reference voltage for A/D converter
66	AVSS			GND of A/D converter
67, 68	NC			Open
69, 70	AVREF			Connected to VSS
71	NC			Connected to VSS
72	TXARI	I		Connected to VSS
73	$\overline{\text{TESTIN}}$	I		Input with starting test program
74-76	NC			Connected to VDD
77	$\overline{\text{BRST}}$			Input of reset of P-Bus
78	NC			Connected to VSS
79, 80	NC			Open

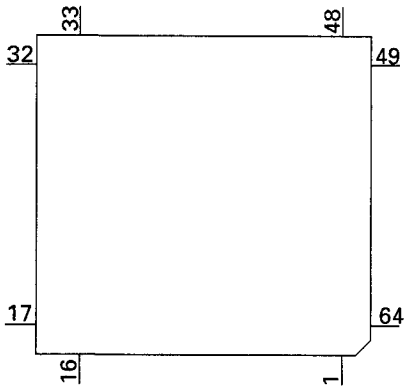
*PE5320A



*LC72720NMHS



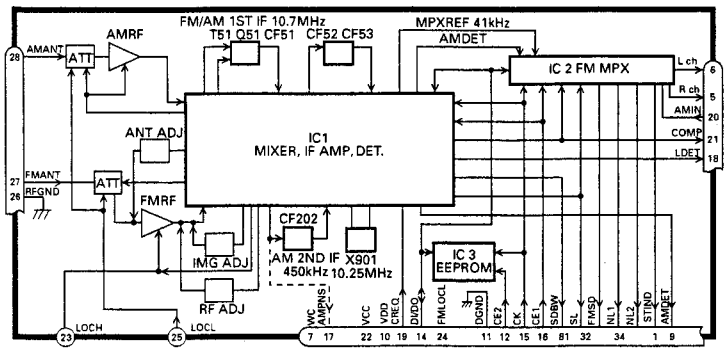
*PD3430A



● Pin Functions (PD3430A)

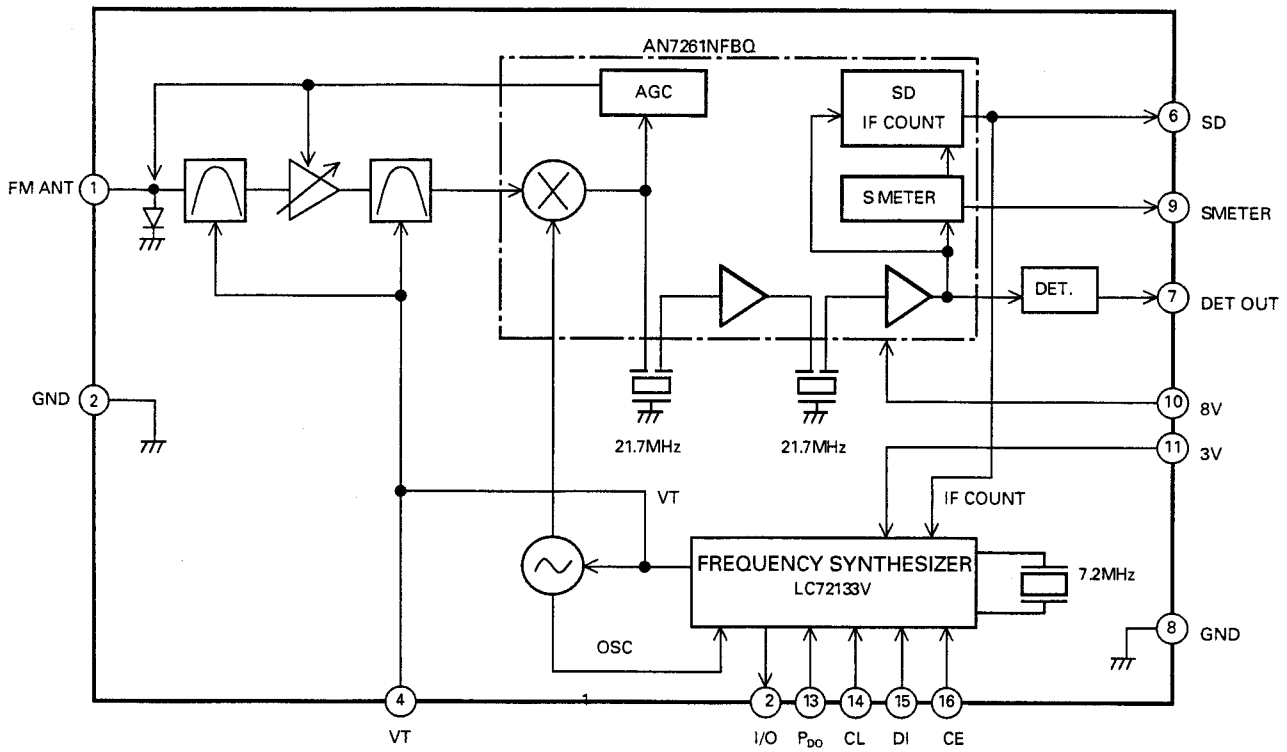
Pin No.	Pin Name	I/O	Function and Operation
1-4	DB12-15	I/O	Data bus input / output
5	IR	I	Instruction register selection input
6	CS1	I	Chip select 1 input
7	CS0B	I	Chip select 0 input
8	WRB	I	Write strobe input
9	RDB	I	Read strobe input
10	BCLK	I	Bus clock input
11	RDYB	O	Ready signal output
12	CSOUT	O	Outside chip select output
13	VCC3		3.3V power supply
14	GND		GND
15	VCC5		5V power supply
16	GND		GND
17	CKD	O	Serial data clock output
18	UCKA	O	The anode drive clock output
19	LS	O	Synchronizing line signal output pin
20,21	UADL0,1	O	Anode serial data output
22,23	UADR0,1	O	Anode serial data output
24	PVCCK	O	Not used
25	UCD	O	Cathode serial data output
26	VCC3		3.3V power supply
27	GND		GND
28	LCD	O	Not used
29	LCKA	O	Not used
30,31	LADL0,1	O	Not used
32,33	LADR0,1	O	Not used
34	SEGCKA	O	Not used
35,36	SEGAD0,1	O	Not used
37	VCC5		5V power supply
38	GND		GND
39	VCC3		3.3V power supply
40	GND		GND
41,42	PVCSEL0,1		Not used
43	TESTRAM		Not used
44,45	TESTSEL0,1		Not used
46,47	PNLSEL0,1		Not used
48	T		Test pin
49	W		Test pin
50	RB	I	Reset input
51-56	DB0-5	I/O	Data bus input / output
57	GND		GND
58	VCC3		3.3V power supply
59-64	DB6-11	I/O	Data bus input / output

● FM/AM Tuner Unit

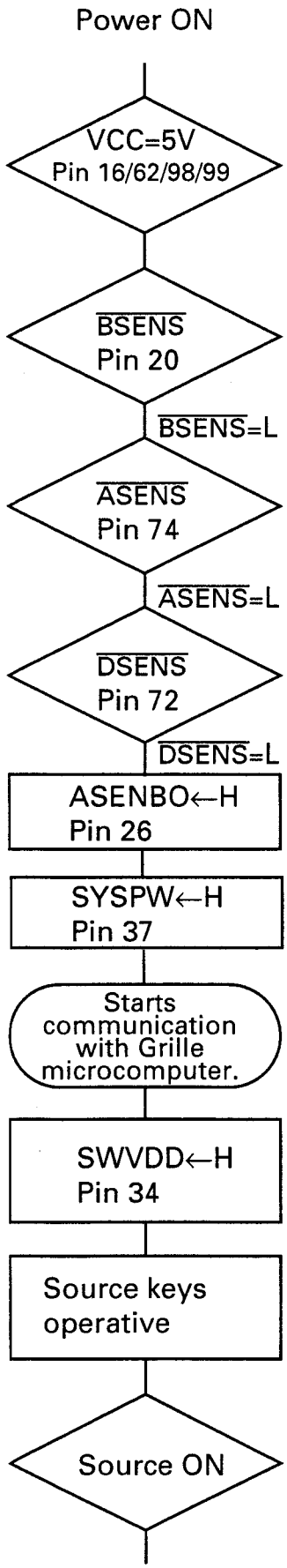


No.	Symbol	I/O	Explain	
1	STIND	O	stereo indicator	"Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector	"High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from here and "High: 0.9VDD or more" and "Low: 250mV or less". (Should satisfy the diver IC specifications)
3	NL1	O	noise level-1	"High" when noise is received. Output for the RDS. GND at 47kΩ//1,800pF.
4	NL2	O	noise level-2	"High" when noise is received. Output for the RDS. GND at 36kΩ//330pF.
5	Rch	O	R channel output	FM stereo "R-ch" signal output or AM audio output. Add the specified de-emphasis constant.
6	Lch	O	L channel output	FM stereo "L-ch" signal output or AM audio output. Add the specified de-emphasis constant.
7	WC		write control	EEPROM write control. Writing permissible at "Low". Normally open.
8	SDBW	O	SD bandwidth	SD bandwidth signal output. For detection of detuning data for the RDS.
9	AMDET	O	AM detector output	AM detector output. r out < 100Ω
10	VDD		power supply	Power supply pin for the digital section. DC 5V +/- 0.25V. Be careful about overlapping noise in the logic section.
11	DGND		digital ground	Grounding for the digital section.
12	CE2	I	chip enable-2	EEPROM chip enable. Active a "Low" To be pulled up to the "VDD" at 47kΩ
13	SL	I/O	signal level	Received FM/AM signal level (strength) output. Connect the specified load resistor and capacitor (10k Ω+ 39k Ω//4,700pF)
14	DI/DO	I/O	data input/ data output	Data input/Data output To be pulled up to the "VDD" at 47kΩ
15	CK	I	clock	Clock input To be pulled up to the "VDD" at 47kΩ
16	CE1	I	chip enable-1	AF·RF chip enable. Active at "High"To be grounded at 47kΩ
17	AMPNS	O	AM PNS IF signal	IF signal output for AM PNS circuit.
18	LDET	O	lock detector	Active at "Low". To be pulled up to the "VDD" at 47kΩ
19	CREQ	I	current request	Active at "Low". To be grounded at 47kΩ
20	AMINI		AM audio input	The frequency response and the level are set by connecting an external CR network with terminal AMIN as terminal AMDET. r in = 50kΩ
21	COMP	O	composite signal	FM composite signal output. r out < 100Ω
22	VCC		power supply	Analog section power supply pin.DC 8.4V +/- 0.3V
23	LOCH	I	local high	FM local high pin. When seeking local high, apply 5V together with "LOCL".
24	FMLOCL	I	FM local low	FM local low pin. When seeking local low, apply 5V to the base of the NPN transistor with which the specified resistor is being connected to the emitter. Keep it open in case of ordinary marketed models.
25	LOCL	I	local low	FM/AM local low pin. When seeking local low, apply 5V to the base of the NPN transistor.Since this pin is exclusive for AM when the FMLOCL is in use, do not drive it under FM.
26	RFGND		RF ground	Grounding for the antenna section.
27	FMANT	I	FM antenna input	FM antenna input. 75Ω. Surge absorber (DSP-201M-S00B) is necessary.
28	AMANT	I	AM antenna input	AM antenna input. High impedance. Connect to the antenna through an L (LAU type) of 4.7μH.To cope with the power transmission line hums, insert a series circuit consisting of an L (a coil of about 100mH) + R (a resistor of 470 Ω to 2.2kΩ) between the GND.

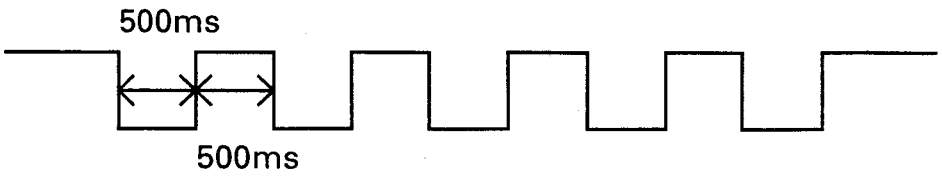
● Tuner unit (CWE1674)



7.3 OPERATIONAL FLOW CHART



Completes power-on operation.
(After that, proceed to each source operation)



In case of the above signal, the communication with Grille microcomputer may fail.
If the time interval is not 500msec, the oscillator may be defective.

7.4 CLEANING

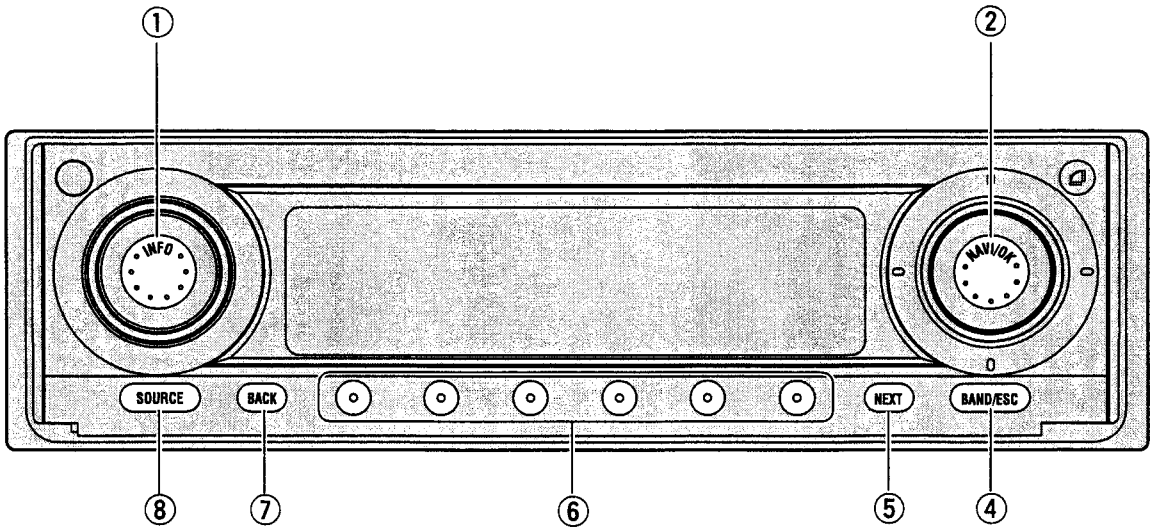
Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Portions to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. OPERATIONS

Before You Start



What's what

① Rotary volume, INFO button
With the NAVIGATION function
Rotary: Lets you adjust guidance volume level.
Push: Displays information indications.
With the AUDIO function
Rotary: Lets you adjust the volume level of each source.
Push: Lets you cancel each function during operation.

② Rotary stick, NAVI/OK button
With the NAVIGATION function
Rotary: Lets you select an item.
◄/►/▼/▲ : Let you select an item.
Push: Lets you enter a selected item and switch functions ON/OFF.
With the AUDIO function
Rotary: Lets you manually adjust.
◄/►/▼/▲ : Let you manually adjust.
Push: Switches to the main navigation display.

③ OPEN button
Press to open the front panel.

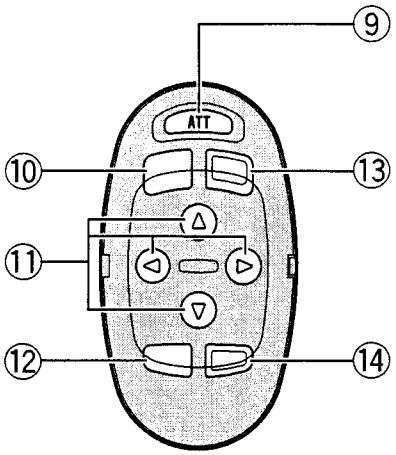
④ BAND/ESC button
Press to select among three FM or MW/LW bands and cancel the control mode of functions.

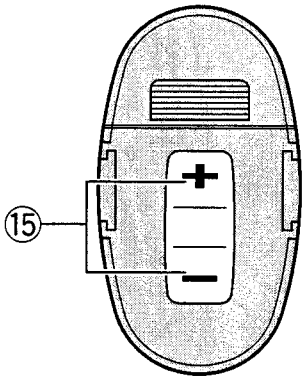
⑤ NEXT button
Press NEXT to switch through the functions of the multi-function buttons.

⑥ Multi-function buttons
Press to select functions.

⑦ BACK button
Pressing BACK cancels the current menu or mode and returns to the previously selected menu or mode.

⑧ SOURCE button
With the NAVIGATION function
Switches to the main audio display.
With the AUDIO function
This unit is switched on by selecting a source. Press to cycle through all of the available sources.





Optional remote control

The steering remote control CD-SR100 is sold separately. Operation is the same as when using the button on the head unit. See the explanation of the head unit about the operation of each button with the exception of ATT, which is explained below.

⑨ ATT button
Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

⑩ BAND button

⑪ ▲/▼/◄/► buttons

⑫ FUNCTION button

⑬ SOURCE button

⑭ AUDIO button

⑮ VOLUME button

Note

- Navigation operations of the ANH-P9R cannot be performed even if the CD-SR100 is switched to the navigation mode. ▣

Turning a source on or off

You can select the source you want to listen to. To switch to built-in CD player, load a CD in this product.

1 Press SOURCE to select the desired source (e.g., tuner).
Press SOURCE repeatedly to switch between the following sources:
Built-in CD player—TV tuner—Tuner—DAB tuner—Multi-CD player—External unit 1—External unit 2—AUX

2 Raise or lower the volume.
Rolling the VOLUME changes the volume level.

- Roll clockwise to raise the volume level.
- Roll counterclockwise to lower the volume level.

3 Press and hold SOURCE to turn the source off.

Notes

- External unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Two external units can be controlled by this product, although "External" is displayed whether you select external unit 1 or external unit 2. When two external units are connected, the allocation of them to external unit 1 or external unit 2 is automatically set by this product.
- In the following cases, the sound source will not change:
  - * When no product corresponding to the source is connected to this product.
  - * No audio disc is set in this product.
  - * No magazine is set in the multi-CD player.
  - * AUX (auxiliary setting) is set to off.
- When this product's blue/white lead is connected to the car's auto-antenna relay control terminal, the car's auto-antenna extends when this product's source is switched on. ▣

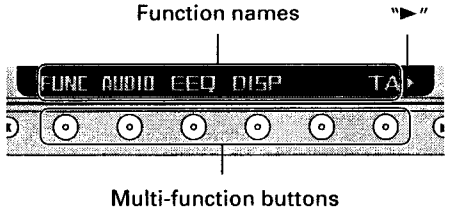
Using navigation and SOURCES simultaneously

If SOURCE is pressed after having set the destination during navigation, the SOURCE display and navigation information are displayed simultaneously.

An announcement is made by the guide audio as necessary. In the case the name of the course changes, although the display will switch to the navigation display, it will automatically return to the SOURCE display. ▣

SOFT KEY operation

SOFT KEY operation means that the function of a button changes as indicated on the display. The multi-function buttons provide SOFT KEY operation; the functions performed by the buttons change according to the function or setting that has been selected.



Important

- In this manual, for operations using the multi-function buttons the function displayed is used as the name of the function button.

Switching the function of the multi-function buttons

The "►" indicator shows that the multi-function buttons have functions other than those currently displayed. When this indicator is visible, press NEXT to switch through the functions of the multi-function buttons.

• Press NEXT to display the desired functions (e.g., built-in CD player).
Press NEXT repeatedly to switch between the following functions:

Notes

- The number of functions or displays switched through will differ according to the source or menu selected.
- When no function is indicated for a button, that button is not currently active.

Example of multi-function button operation

Here the "random play" function of the built-in CD player is used as an example to illustrate operation of the multi-function buttons.

1 Press NEXT to display FUNC.
Press NEXT repeatedly until FUNC appears.

2 Press FUNC to enter the function menu.
With the switch to the function menu, the functions of the multi-function buttons also change simultaneously.

3 Press RDM to select the random mode.

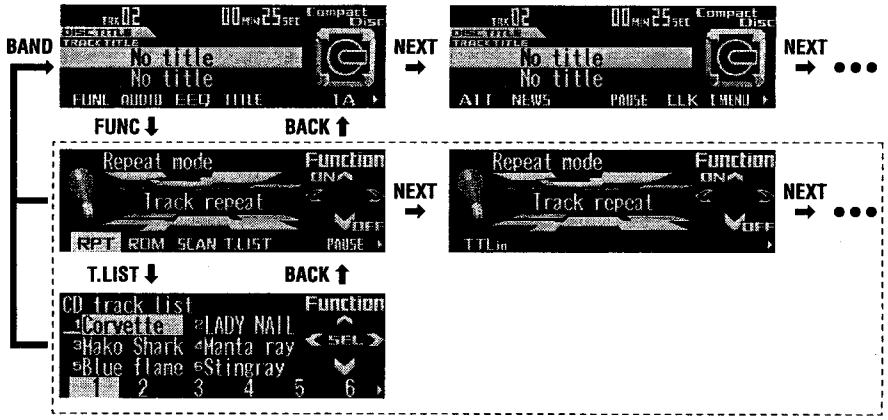
4 Press RDM to turn random play on.

The light illuminates.

• Press RDM again to turn random play off.
The light goes off.

5 Press BACK to exit the function menu.
When the function menu is exited, the functions of the multi-function buttons also change simultaneously.

Display example (e.g., built-in CD player)



Key guidance indicator

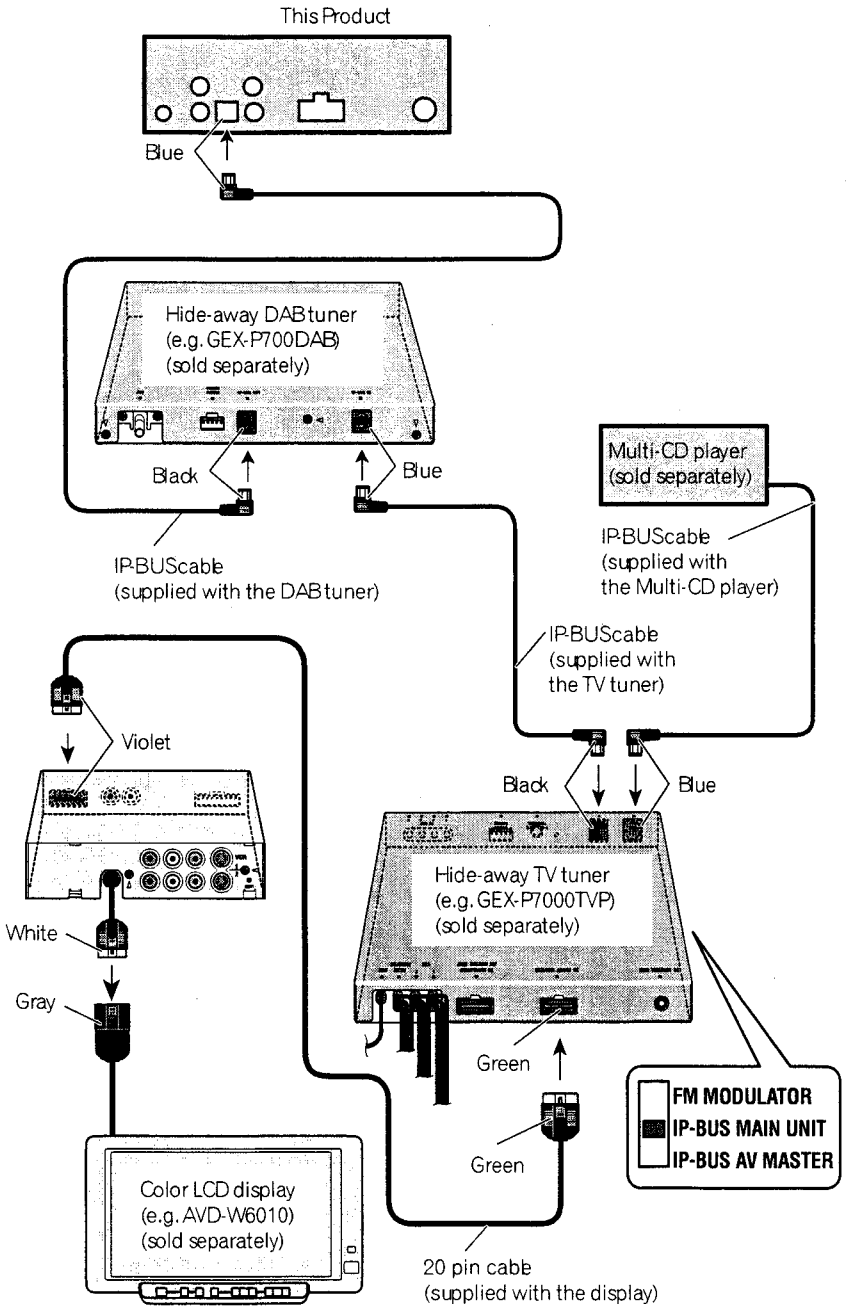
This product's display features key guidance indicators. These light to indicate which of the ▲/▼/◄/► buttons you can use. When you're in the function menu, audio menu or the other menus, they also make it easy to see which ▲/▼/◄/► buttons you can use to switch functions on/off, switch repeat selections and perform other operations.

Key guidance indicators

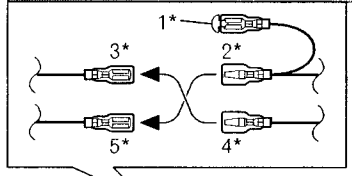
Note

- In this manual, operation for each mode is given mainly in terms of the multi-function buttons. However, in each mode, when the key guidance indicators are lit it is also possible to use▲/▼/◄/► to operate the mode.

● Connection Diagram



Note
Depending on the kind of vehicle, the function of 3* and 5* may be different. In this case, be sure to connect 2* to 5* and 4* to 3*.



IP-BUS input (Blue)

This Product

IP-BUS cable

GPS aerial

Multi-CD player (sold separately)

GPS aerial jack

RCA outputs (Refer to page 10.)

Antenna jack

The pin position of the ISO connector will differ depending on the type of vehicle. Connect 6* and 7* when Pin 5 is an antenna control type. In another type of vehicle, never connect 6* and 7*.

Cap (1*)
When not using this terminal, do not remove the cap.

Connect leads of the same color to each other.

Fuse holder

Blue/white
To system control terminal of the power amp (max. 300 mA 12 V DC).

Blue/white (6*)

Blue/white (7*)
To Auto-antenna relay control terminal (max. 300 mA 12 V DC).

Connect leads of the same color to each other.

Yellow (3*)
Back-up
(or accessory)

Yellow (2*)
To terminal always supplied with power regardless of ignition switch position.

Fuse resistor

Red (5*)
Accessory
(or back-up)

Red (4*)
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

Fuse resistor

Orange/white
To lighting switch terminal.

Black (ground)
To vehicle (metal) body.

Yellow/black
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.

Pink
The mobile navigation system is connected here to detect the distance the vehicle travels. Always connect the vehicle's speed detection circuit or the ND-PG1 speed pulse genator, sold separately. Failure to make this connection will increase errors in the location display.

Fuse resistor

Violet/white
This is connected so that the navigation system can detect whether the vehicle is moving forwards or backwards. Connect the violet/white lead to the lead whose voltage changes when the reverse gear is engaged. If this is not connected, the sensor inside this unit will determine whether your vehicle is travelling forwards or backwards.

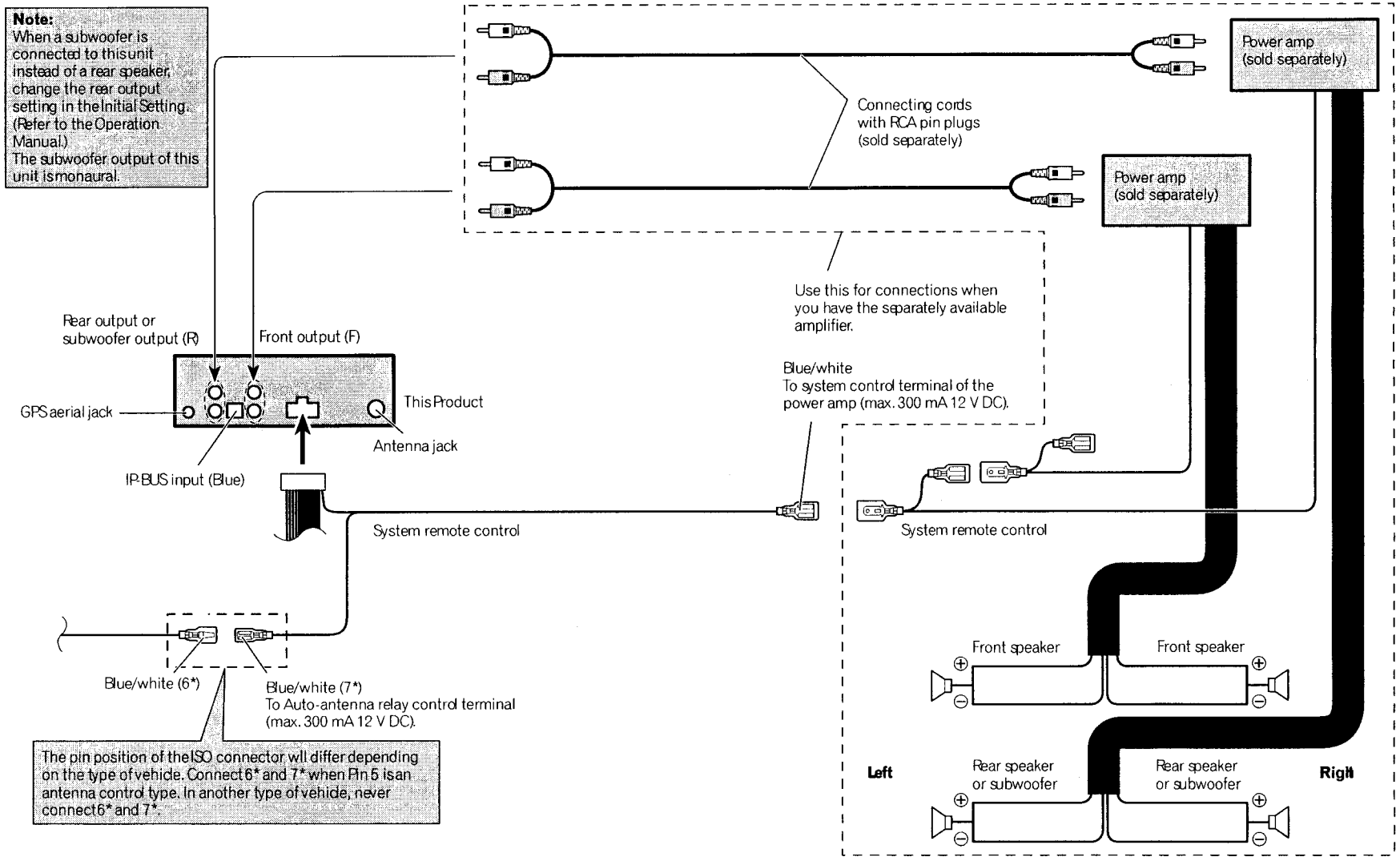
Speaker leads

White	: Front left ⊕
White/black	: Front left ⊖
Gray	: Front right ⊕
Gray/black	: Front right ⊖
Green	: Rear left ⊕ or Subwoofer ⊕
Green/black	: Rear left ⊖ or Subwoofer ⊖
Violet	: Rear right ⊕ or Subwoofer ⊕
Violet/black	: Rear right ⊖ or Subwoofer ⊖

ISO connector

Note
In some vehicles, the ISO connector may be divided into two. In this case, be sure to connect to both connectors.

Note
The position of the speed detection circuit depends on the vehicle model. For details, consult the relevant documents from PIONEER. When making connections for a model not listed in those documents or for which connecton to the speed detection circuit is too difficult, connect the separately sold ND-PG1 speed pulse generator to the pink lead.


Note:
When a subwoofer is connected to this unit instead of a rear speaker, change the rear output setting in the Initial Setting. (Refer to the Operation Manual.)
The subwoofer output of this unit is monaural.
Power amp (sold separately)
Connecting cords with RCA pin plugs (sold separately)
Power amp (sold separately)
Use this for connections when you have the separately available amplifier.
Rear output or subwoofer output (R)
Front output (F)
GPS aerial jack
This Product
Antenna jack
IP-BUS input (Blue)
Blue/white
To system control terminal of the power amp (max. 300 mA 12 V DC).
System remote control
System remote control
Front speaker
Front speaker
Left
Rear speaker or subwoofer
Rear speaker or subwoofer
Right
Blue/white (6*)
Blue/white (7*)
To Auto-antenna relay control terminal (max. 300 mA 12 V DC).
The pin position of the ISO connector will differ depending on the type of vehicle. Connect 6* and 7* when Pin 5 is an antenna control type. In another type of vehicle, never connect 6* and 7*.